X-118/986

Handbook
X-118
Reprinted
May 1986

Qualification Standards

for Positions Under the General Schedule

Through TS-212
April 1986

NEWARK PUBLIC LIBRARY
AUG 4 1986
U. S. GOVT. PUBS.
DEPOSITORY 376

United States
Office of
Personnel
Management

PM1.8/3:

Originating Office:

Office of Standards Development
Staffing Services Group
U.S. Office of Personnel Management
1900 E Street, N.W.
Washington, D.C. 20415

Telephone: (202) 632-4516

Handbook X-118
(Reprinted May 1986)

Preface

This is a reprint of the Handbook X-118, which was reprinted December 1981. It includes all of the changes made in subsequent Transmittal Sheets 195 through 212. It has been prepared primarily to supply new subscribers or present subecribers whose handbooks may be worn out. No changes have been made in the material.

Note

Civil Service Commission organizational references should be changed to Office of Personnel Management, except where inappropriate because of history or law.

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402

Part I

INTRODUCTION

Part I

INTRODUCTION

I. Purpose

This handbook is issued to furnish current qualification standards for positions under ★chapter 51, title 5, of the U.S. Code★ which exist in more than one agency. Unless modified for a given geographical area, these standards will be used for both competitive and noncompetitive actions.

It does not supersede the regulations and instructional material contained in the Federal Personnel Manual and other Commission issuances governing personnel actions and recruitment procedures. (See especially FPM, Chapter 338.)

II. Content

This handbook contains current experience and training requirements coded to the appropriate series established under the Federal Position Classification Plan, instructions for the use of standards in noncompetitive actions and agency recruitment outside of registers. It also contains minimum physical requirements.

Departmental Circular No. 588, Supplement 4, provides standards for positions in grades GS–16, GS–17, and GS–18.

Qualification standards for positions peculiar to a single agency are distributed directly to the agency concerned and are not included in this handbook, although the agency concerned may wish to file copies of single-agency standards in this handbook for convenience.

III. Arrangement

Part II contains the instructions for the use of standards in noncompetitive actions and agency recruitment outside of registers. Part II also includes minimum physical requirements.

Part III contains the qualification standards filed by series codes. Individual standards within any series are, in general, filed alphabetically by position title within that series.

Part IV contains an alphabetical index which lists by position title the standards that are included in part III. Also included in this index are single-agency qualification standards (not included in this handbook) which are identified by the notation "S/A (Name of Agency)."

IV. Distribution

The Civil Service Commission furnishes copies of the handbook only to its own offices. Federal agencies should purchase handbooks from the Government Printing Office in sufficient quantity to meet their needs.

V. Maintenance

The Commission issues new standards and revisions of standards monthly by numbered transmittal sheets.

Examining offices of the Commission generally are authorized to modify qualification standards for most positions under their jurisdiction. Announcements with modified standards have the notation "X–118 modified" below the closing date. Since agencies in noncompetitive actions have the option of using standards in an appropriate *open* examination announcement in place of published standards, they should upon receipt of announcements bearing this notation bring Handbook X–118 up to date. This may be done in any manner the agency chooses; the following methods are only suggestions:

(1) If the number of modifications is not too great, the announcements, or at least the qualifications portion of the announcement, could be placed in Handbook X–118, until the announcement is closed. This would keep standards in one source.

(2) A notation including the announcement number and the issue date of the announcement could be made in the handbook when standards are modified. The notation would be deleted when the announcement is closed.

Part II

INSTRUCTIONS TO USERS

Part II

INSTRUCTIONS TO USERS

Section		Page
I.	General Provisions	2
	Determining the Appropriate Qualification Standard	
	Group Standards	
	Extension of Qualification Standards	
	Alternative Noncompetitive Standards	
	Requests for Standards from OPM	
	Requests for Standards from OPM	
	→Qualification Requirements Amendment for Grade GS–1←	
	Flexibility in Staffing Professional Positions	
	Maximum Age Limits	
	Minimum Age Limits	
	Relationship Between Qualification Standards and Position-Classification Standards	
II.	Crediting Experience	7
	General	
	Evaluating Specialized Experience: A General Amendment to Certain Qualification Standards	
	Experience in the Armed Forces	
	Evaluating Concurrent Education and Experience	
	Normal Work Year	
	Evaluation of Technician Experience for Professional Positions	
	Extra Credit for Creative Research or Development	
III.	Crediting Education	11
	Certificates of Equivalency or Proficiency as Substitutes for High School Education Requirements	
	Acceptance of College-Level Credit Programs	
	Accredited Education	
	Acceptability of Academic Credit from Non-Traditional Degree Programs	
	Evaluating Foreign Education Credentials	
	Home Study and Correspondence Course Education	
	Common Pattern of Grade Eligibility Based on Graduate Education	
	Superior Academic Achievement Standard	
	Student Trainee	
	Education as an Extension of Experience	
	Amendment of Educational Requirement for Most Professional Positions in Science and Technology	
IV.	Written and Performance Tests	25
V.	Physical Requirements	26
	General	
	Standard Paragraphs	
	Appendix A—College Honor Societies Acceptable Under the Superior Academic Achievement Standard	29

DETERMINING THE APPROPRIATE QUALIFICATION STANDARD

1. The specific qualification standard to be used in filling a position is usually easily determined as described in paragraphs 5, 6, and 7 below. In most cases, the standard for the series code number, class title, and grade of the classified position is clearly appropriate. However, as in all personnel management processes, care and judgment must be exercised to avoid errors which might result from a purely mechanical or routine application of these generally sound instructions.

2. "Mixed-series" positions, as well as unusual positions which do not clearly fall into one of the existing defined series, frequently require the exercise of judgment in determining the appropriate standards to use. If a position has been classified into a series specifically established to be used in classifying work characteristic of two or more individual series, e.g., the General Supply Series, GS-2001, because no single duty is grade controlling or paramount, there may or may not be an appropriate standard contained in part III of this handbook. Group standards (see paragraph 6 of this section) are described for some, but not all, of the occupational groups. The standards for positions with duties characteristic of two or more individual series that do appear in part III of this handbook may be found to be not appropriate for the position to be filled. In such cases, agencies should follow the instructions contained in paragraph 9 below.

3. The first indication that the normally applicable qualification standard may be the wrong one to use in filling a particular job usually arises when an individual who seems obviously fully capable of performing the job does not meet the required experience, training, or other requirements of the standard being applied. In such a case, there should be a prompt exploration of the possibility that the job being filled is incorrectly classified, in terms of the way in which appropriate management authority currently conceives of the job's duties and responsibilities. There is often more than one way to organize work in order to accomplish organizational objectives. Changes in the way work is to be done are frequently a reaction to the kind of people available in the labor market. A responsive personnel management program will find that problems arising in the application of qualification standards may be the direct result of a need for significant changes in job classification. These changes in job classification will, when made, clearly point to the need to apply a different and more appropriate qualification standard.

Example A: An incumbent has been in charge of the industrial production equipment branch for 6 years, occupying the position of Supervisory Equipment Specialist GS-1670-14. He has had a long and successful career, starting in the trades, advancing through production and equipment specialist channels to major supervisory responsibilities over such work. A reorganization has resulted in adding to the branch a new industrial engineering section established to carry out comprehensive engineering studies of plans and machines systems. This new section consists mainly of a few professional Industrial Engineers, headed by a GS-13 engineer. The branch chief position has been redescribed to reflect this new function and, because the new description provides that the branch chief will exercise full professional and technical engineering supervision over this new section, it has now been classified as Supervisory Industrial Engineer GS-896-14. The incumbent clearly does not posess full professional engineering competence either through education or experience.

In this example, management must choose how it intends the position to operate. If the position *is* to include full responsibility for making final professional engineering judgments, the position is correctly classified in the

INSTRUCTIONS TO USERS

GS–896 series and should be filled by a professional engineer. If, in view of the personnel available, management changes its mind and now intends the branch chief position to function as one which, while it includes full managerial responsibility and direction of this particular new function, does *not* include professional engineering responsibility for this function, the position should be redescribed and classified as a nonprofessional job, thus calling for a different qualification standard.

Example B: An employee proposed for reassignment to the position of Aviation Maintenance Specialist GS–1825–13 shows the following background: Master's degree in education, 13 years in Training Instructor GS–1712 positions, GS–9 through GS–13, involving training in aviation maintenance fields. The position to be filled involves initiating, coordinating, supervising, and evaluating all aspects of the training program for aviation maintenance personnel. It includes long, intermediate, and short-term planning in implementing future and current technical training programs. The candidate has not performed full journeyman duties as described in the GS–1825–11 position classification standards, and it appears reasonable that he would not meet any special qualification standard requested for this series. In this case, management must consider how the position is to function so that the mission of the agency is best accomplished. The position is one which could conceivably be filled by an aviation expert with some background in training or by a training expert with some background in aviation maintenance. There will be a difference in emphasis and the position will be shaped differently by the qualifications which its incumbent will possess. If management, after considering the candidates, decides that a training expert would be best suited for the position, it should be recognized that this decision carries with it the decision that the position will operate differently. Therefore, the position should be redescribed and reclassified to the appropriate series, in this case, probably a series in the 1700 group.

4. Obviously, not all cases in which an individual fails to meet the standard for the job being filled can or should be resolved by a classification change. If a change in classification is not indicated, the other alternatives are:

(a) the qualification standard itself may be in error, in which case a change in the standard should be proposed to the Commission with an explanation of the basis for the recommended change; (b) the individual may not possess the necessary background to perform satisfactorily in the job to be filled and should not be so placed.

5. Specific qualification standards are given in part III. These standards are arranged by series number and classification title.

Standards for positions peculiar to a single agency and special standards issued for use only by a single agency are distributed directly to the agency concerned and are not included in this handbook.

Qualifications determinations for Classification Act positions that are not covered by specific standards in Part III or by Single-Agency Qualification Standards may be made as follows in 6 and 7 below.

6. **Group standards.**—Wherever feasible, standards have been developed to cover Occupational Groups; these Group Standards are to be used whenever a specific series or class within a group is not covered by standards in Part III. (See, for example, the standards in Part III for GS–200, GS–300, GS–500, and GS–2100.)

7. **Extension of qualification standards.**—Whenever a standard in this handbook sets a pattern of qualifications for a range of grades in a series, that pattern may be applied to all noncompetitive actions and competitive appointments on the basis of agency recruiting for positions in the series whether or not a specific grade level is included in the standard. This means that grade levels that are omitted

(such as GS–6, GS–8, or GS–10 in some standards) may be covered by following the pattern of lengths and kinds of experience required for the grades for which qualifications are specifically stated. (For example, if the standards require 5 years of a certain kind of experience for GS–9 and 6 years of experience for GS–11, 5½ years of experience will satisfy the requirement for GS–10, even though the standard in Part III includes no provision for GS–10 positions.) It also means that grade levels below the lowest grade shown in the standard or above the highest grade shown may be determined on the basis of the pattern shown in the standard. When extending the patterns of experience requirements to grade levels not included in the standard, the following rules apply:

a. For grades GS–12 and above, no additional *amount* of experience is required beyond that for grade GS–11.

b. For grades GS–6 through GS–11, 6 months of the required experience must have been equivalent to the level of difficulty and responsibility of the next lower grade or 1 year of the required experience equivalent to the second lower grade. For grades GS–12 and above, 1 year of the required experience must have been equivalent to the next lower grade.

c. If the duties of the higher grade position are primarily administrative in nature, candidates should be required to have demonstrated administrative ability.

Note: The preceding instructions may be used to extend the coverage of Single-Agency Qualification Standards. When an agency finds it necessary to extend the coverage of a Single-Agency Qualification Standard, it should notify the Commission promptly so that the standard can be revised to cover the full range of grades in the series.

8. Alternative noncompetitive standards.—An alternative noncompetitive standard is a standard authorizing agencies to assign or promote employees of certain grades and classes to certain other grades or classes under noncompetitive requirements that may differ in some respects from the usual competitive qualifications requirements; for example, by substitution of education, experience, or training for all or part of the usual qualifications requirements. It is distinguished from a training agreement in that no significant special training, over and above that involved in the regular duties of the position, is required. Even though alternative noncompetitive standards are approved with respect to the qualification requirements for noncompetitive actions, reassignments and promotions permitted under the terms of such standards are nevertheless subject to the limitations of section 300.602 of the Commission's regulations. An alternative noncompetitive standard cannot be used as a basis for promotions under section 300.603(a)(1).

Requests for alternative noncompetitive standards should be addressed to the appropriate examining office of the Commission and should include the following:

1. Reason for alternative noncompetitive standard.
2. Positions involved.
3. Proposed requirements.
4. If the proposed standards involve substitution of training, ordinarily the same information as shown under "Requests for Training Agreements" in FPM Chapter 271, Appendix A, should be submitted; if the "training" has been acquired in the past, as much of that information as is pertinent and available should be submitted.

9. Requests for standards from the Commission.—Under the following circumstances, agencies should request the appropriate Commission regional office, or in the Washington area, the Bureau of Recruiting and Examining to furnish standards or to approve proposed standards whenever such standards are needed. (See FPM Chapter 338). When the positions involved come under the jurisdiction of more than one regional office, or the Bureau of Re-

cruiting and Examining and one regional office, the agency should submit its request to the Standards Development Center:

a. If positions are not covered by Group Standards in part III or by a Single-Agency Qualification Standard.
b. If there are no existing standards that set a pattern for the series.
c. If existing standards are not appropriate for the position.

→**10. Qualification Requirements Amendment for grade GS–1.**—The following qualification requirements are to be used for determining eligibility for all GS–1 positions in lieu of the requirements in the current qualification standards:

"For grade GS–1, no written test, experience or education is required. Candidates must be interested in, and willing to perform simple, routine ------ work (see NOTE), and show evidence of likelihood of success on the job."

(NOTE: For each occupation fill in the word that describes the type of work to be done.)

The above statement applies to all GS–1 positions and amends all qualification standards that currently require experience or a written test at grade GS–1. It also applies to GS–1 positions for which there are no published qualification standards.←

FLEXIBILITY IN STAFFING PROFESSIONAL POSITIONS

Most professional positions have educational requirements which must be satisfied by candidates for positions in that discipline. There are on occasion professionally competent candidates who are evidently well qualified to perform the work but whose education does not satisfy the specified requirements of the discipline of the position to be filled.

There are three basic approaches to this staffing problem which agencies may follow without prior approval of the Office of Personnel Management. Approaches 1 and 3 provide flexibility in the classification action to be taken. Approach 2, being a general amendment of educational requirements to provide flexibility, applies where appropriate not only to the other two types of cases, but to professional qualifications in general.

1. The position-classification approach.—It is sometimes feasible and appropriate to restructure the position so that it can be classified to a series that fits the qualifications of the candidate. Such situations occur most typically for research positions, the classification of which reflects in large measure the qualifications of the employee. (See Determining the Appropriate Qualification Standard, above.)

2. The qualifications examining approach.—The Office of Personnel Management has issued a general amendment of educational requirements for most professional positions in science and technology to be filled by persons who have demonstrated the ability to perform professional work of GS–12 or higher levels. It is an alternate provision of standards for application whenever warranted. The amendment modifies the basic educational requirements for positions in a discipline so that a panel of professionally qualified examiners may exercise professional knowledge and judgment in evaluating the qualifications of scientists and engineers whose completed education does not fully satisfy specified course requirements, but whose experience and education clearly demonstrate possession of the knowledges and abilities required for professional work in the occupation.

This amendment has been added to section III, part II of this handbook. The concepts presented as background observations preceding the amendment underlie not only the amendment but also the position-classification structure for professional positions.

3. The integrated position-classification and qualifications-examining approach for interdisciplinary positions.—Special procedures have been established for certain interdisciplinary professional positions which are classifiable in more than one series. The position descriptions for such positions are annotated as follows: "Interdisciplinary position classifiable in any one of the following classes:—"

Qualification standards for any one of the appropriate classes may be applied in evaluating the qualifications of candidates for interdisciplinary positions. In all cases, the appointee must meet the qualifications standard for the class of the position to which he is appointed. (Instructions concerning the classification of interdisciplinary positions and explanatory background material are contained in section II, paragraph J, of the Introductory Material to Position-Classification Standards, dated August 1963.)

MAXIMUM AGE LIMITS

There is no maximum age limit requirement for either competitive or non-competitive appointment to any position in the competitive service except as specifically authorized under one of the following:

(1) Section 3307 of Title 5, United States Code; or

(2) Section 15 of the Age Discrimination in Employment Act of 1967, as amended in 1974 by PL 93–259 (Section 633a of Title 29, U.S.C.), which authorizes OPM to establish a maximum age requirement but only after determining that age is an occupational qualification necessary to the performance of the duties of the position.

The above legal references can be found in FPM Supplement 990–1.

Where a maximum age requirement has been established and is in effect, this fact must be noted in the individual examination announcement.

MINIMUM AGE LIMITS

Minimum age limits for appointment to positions in the competitive service have been established

—to insure that the applicants have the maturity necessary for successful job performance; and

—to insure that Federal Government hiring practices are not in conflict with the general objective of encouraging students to complete their basic education.

These age limits apply to all positions in the competitive civil service except those specific positions for which a different minimum age limit has been established. In addition to the minimum age requirement, Federal, State, and local laws relating to the employment of minors, and the provisions of the Fair Labor Standards Act, must be observed.

General minimum age limits.—When no minimum age limit is included in either the qualification standard or the individual examination announcement, the minimum age is 18, except that for high school graduates the minimum age is 16. The minimum age is also 16 for persons who have not graduated from high school provided they have (1) completed a formal training program which has prepared them for gainful employment or (2) have been out of school for at least three months, not counting the summer vacation, and have received a certificate from school authorities agreeing to their employment or (3) have been awarded a GED High School Equivalency Certificate or a High School Proficiency Certificate by a state or territorial-level Board or Department of Education.

Vacation and part-time employment of secondary school students.—For the employment of secondary school students during vacation periods within the school year, the minimum age is 16. For the employment of such students during the summer school vacation period, refer to FPM Chapter 332, Appendix J.

For the employment of secondary school students on a part-time basis during the school year (including temporary limited, career, and career-conditional employment), the minimum age is 16 provided the following conditions are met:

(1) The work schedule for the student has been established through agreement with school authorities;

(2) The school authorities have certified that the student is capable of maintaining good standing in school while employed; and

(3) It is clearly understood that as a condition for continuing the part-time employment the student must remain enrolled in a secondary school.

Positions for which a minimum age other than that generally stated has been established.—OPM may, for a particular position, establish an age minimum other than that generally stated if OPM and the agency concerned agree that the age limit is job related and that the interests of sound administration so require. In addition, certain exceptions are authorized under Section 3307 of Title 5, U.S.C. When a different minimum age requirement from that generally stated has been established, the fact will be noted in the individual examination announcement, and may be reflected in the applicable qualification standard(s) in part III of this Handbook.

INSTRUCTIONS TO USERS

RELATIONSHIP BETWEEN QUALIFICATION STANDARDS AND POSITION-CLASSIFICATION STANDARDS

A position-classification standard describes the duties, responsibilities and qualifications required for full performance for a class of positions. It distinguishes one class of positions from other classes under the position-classification plan. A qualification standard describes the knowledges, abilities and skills required to predict potential for successful performance of the duties of a class of positions as well as means for determining that applicants possess this potential. Both standards are interdependent parts of one overall product, the occupational standard, and are normally prepared simultaneously after a thorough occupational survey. Intelligent use of either standard requires an understanding of its counterpart. Personnel technicians concerned with making qualifications determinations should familiarize themselves with the general position-classification plan and the specific position-classification standards covering the positions with which they are concerned. Much useful information is available in the introductory material to position-classification standards, issued in August 1963, particularly, the description of the Impact of the Man on a Job in section II.

Section II. CREDITING EXPERIENCE

The following guides are furnished to aid in determining whether or not an employee or applicant satisfies the experience requirements of a standard in part III.

GENERAL

All valuable experience and training of the quality and type specified in the standard, including experience and training gained in religious, civic, welfare, service, and organizational activities, is considered in determining qualifications regardless of whether or not any compensation was received. Training which has been obtained under the Area Redevelopment Act, the Manpower Development and Training Act, in Job Corps Centers, or under other auspices such as Federal and State agencies, schools, unions, and other organizations should be evaluated and counted as equivalent to the appropriate period of experience which the training warrants. Unpaid experience is given just as much credit as paid experience if it is valuable and pertinent to the position in question. Experience gained in the Federal Government on detail or misassignment may also be credited if the applicant submits satisfactory evidence to substantiate his claim.

Credit for experience is given on the basis of the regular workweek; part-time experience is credited according to the relation it bears to a full workweek. No "straight-time" additional credit is allowed for overtime, regardless of its length. When qualifying experience in a single occupational area is shown to have exceeded the number of hours or days of a standard workweek, the excess is considered as overtime experience, regardless of whether the experience was acquired under a single employer or under two or more employers concurrently.

The required amount of experience is not in itself sufficient to justify rating the person eligible for the position. He must show experience that has given him the knowledge and abilities necessary to perform successfully duties of the scope, responsibility, complexity, and importance represented by the grade of the position for which he is being considered. As a rule, the experience to be qualifying must have been progressively responsible, with increasingly complex, difficult, and important duties.

Some of the standards in part III divide the required experience into "General" and one or more kinds of "Specialized" experience. Unless the specific standard contains other instructions, an excess of "General" experience may not be used to make up for a deficiency of "Specialized" experience, but excess "Specialized" experience may be substituted for the required "General" experience.

EVALUATING SPECIALIZED EXPERIENCE: A GENERAL AMENDMENT TO CERTAIN QUALIFICATION STANDARDS

Some qualification standards for administrative, professional, and technical positions define specialized experience as experience in substantially the same line of work as the job to be filled. Such standards typically require that 1 year of this specialized experience must have been at a level of difficulty comparable to the next lower grade in that series. These requirements usually reflect the normal pattern of advancement in the occupation. There are, however, instances in which an individual's career has varied from the normal in sufficient degree that his background does not always fit this normal career pattern, although he is clearly well qualified for the job in question. The following general amendment to all standards of this type is issued to broaden the interpretation of related specialized experience for noncompetitive actions so that qualification standards will come closer to the ultimate goal of permitting employees to be assigned noncompetitively to any position for which they have demonstrated the necessary skills and abilities.

General Amendment

In interpreting the specialized experience requirements in noncompetitive actions, agencies are authorized to accept closely related experience in filling administrative, professional, or technical positions when the total background of the individual demonstrates strong affirmative evidence that he:

a. Possesses full journeyman knowledge or professional competence in the occupation in which the job is classified,

and

b. Has the necessary level of skills, knowledges, and abilities needed to do the work.

This general amendment does not apply in competitive appointments or in appointments outside the register. While there is no grade limitation specified in the general amendment, its application will, by definition, tend to be limited to positions at grades GS–12 and above.

The above provisions do not relieve agencies of the need to comply with the letter and the spirit of the Merit Promotion Program and to apply the general amendment fairly and equitably in all promotion actions.

The following examples are given to clarify the types of actions which may be taken under the general amendment:

Example A: A candidate for promotion to a position of Accountant GS–510–13 shows the following background: Bachelor's degree in Accounting; appointed to Accountant GS–510–5 job; promoted through the GS–510 series to an Accountant GS–510–11 job in which he served for 2 years; lateral transfer under an Executive Development Agreement to Supply Specialist GS–2001–11; after 1½ years in this job, promoted to Supervisory Supply Specialist GS–2001–12 where he served for 2 years in a job which includes responsibility for supervising a substantial staff and coordinating stock control, logistics planning, and related supply functions. The position to be filled is a professional accounting job with significant supervisory responsibilities over a portion of the total accounting program of the organization. The applicant clearly has fully professional accounting knowledge and experience, demonstrated supervisory ability, and his GS–12 experience, while not in accounting, has been substantial and reasonably closely related to the job being filled. This GS–12 level supply experience may, therefore, be used to satisfy the requirement in the GS–510 standard that 1 year of his specialized experience must have been at the next lower grade.

Example B: An applicant for promotion to Supervisory Position Classifier, GS–13 shows the following background: Appointed from FSEE as GS–7 Position Classifier, promoted to GS–9 after 1 year, and to GS–11 after another 2 years. After service as a Position Classifier GS–11 for 3 years, he was laterally reassigned during a RIF to

INSTRUCTIONS TO USERS

Management Analyst GS–11. He has now completed 4 years of Management Analysis experience, 3 at GS–11 and 1 at GS–12. He shows a full journeyman knowledge of position classification principles and in addition has 1 year of GS–12 experience in an occupation which requires many of the same knowledges and abilities as are required in the job to be filled, such as the ability to analyze and comprehend work processes, including knowledge of sequence of work, work methods, and procedures. The overall knowledge which he has acquired of the organization, its functions, and subdivisions is a major requirement in the Supervisory Position Classifier position to be filled. He has clearly demonstrated his comprehension of management principles and the relationship of the position classification process to the overall management of the organization. In this situation, the applicant may be permitted to apply his experience as a Management Analyst GS–12 to meet the requirements of 1 year of specialized experience at the next lower grade for the GS–13 Supervisory Position Classifier job.

Example C: A candidate for promotion to Research Physicist GS–1310–13 shows the following background: A bachelor's degree with a major in physics, 5 years' professional experience, one of which was as a research physicist at the GS–11 level and 1 year as an analytical mathematician in private industry in a job comparable in level to GS–12 work on a special project.

In this case, the candidate shows that he possesses full professional competence in the field of physics. His year as an analytical mathematician at the GS–12 level utilized many of the skills, knowledges, and abilities needed by a GS–12 research physicist. In addition, work in the associated science can reasonably be assumed to have contributed to his professional competence. He is, therefore, eligible for reinstatement and assignment to the position of Research Physicist GS–13.

The following is an example of an action which may not be taken under the general amendment:

Example D: A candidate for promotion to Supervisory Accountant GS–510–12 shows the following background: Bachelor's degree with major in accounting, 1 year as Accountant GS–510–5, 1 year as Accountant GS–510–7, 1 year each as Management Analyst GS–343–7, 9, and 11. A review of his background does not show that he has attained full professional competence in accounting, and he is not qualified under the terms of the general amendment to be promoted to the GS–12 position.

EXPERIENCE IN THE ARMED FORCES

→Time spent in the United States Armed Forces may be counted for preference eligibles in whichever of the following ways (1 or 2 below) that is to the better advantage of the veteran:←

1. **Extension of civilian experience.**—The time spent in the United States Armed Forces may be counted as an extension of the work in which the veteran was engaged immediately prior to his entry into the armed forces. ("Immediately prior to" is defined as meaning within the 90-day period preceding entry into the armed or naval forces.)

   a. *Fill-in employment.*—There are many instances in which persons left employment in their regular occupations ostensibly in anticipation of immediate induction, call to active duty from reserve status, or commissioning in some branch of the armed forces; but for some reason they were not called as soon as anticipated and accepted "fill-in" employment, frequently of a different nature, until actually entering the service. In such cases, applicants are considered as having been employed in their regular occupations "immediately preceding" entry into the armed forces if the intervening period is not more than 90 days. In crediting time actually spent in the armed forces as an extension of time spent in occupations interrupted, service in the armed forces may be credited as an ex-

tension of the regular employment or of the interim or "fill-in" employment whichever will result in the more advantageous rating to the veteran.

b. *Part-time employment.*—In cases where the employment in an occupation interrupted by service in the armed forces was on a part-time basis only, the extension of that experience on the basis of such service is creditable only at the rate of which the experience was being acquired prior to interruption. For example, a person who was employed as an accountant or as a sheet metal worker for only 4 hours a day when "interruption" occurred may be given credit for the extension through his service experience only at the rate of 4 hours a day or half-time.

c. *Level of experience.*—Extended experience will be credited only at the level of difficulty and responsibility of the civilian position unless the service experience is qualifying in itself for the position for which the veteran is being considered.

2. **Evaluation on its own merits.**—Experience in the armed forces may be evaluated solely on its own merits with respect to the actual duties performed.

The decision as to whether such experience should be evaluated as continuation of previous civilian employment or on its own merits is resolved in favor of that which would result in a better rating being assigned to the veteran.

EVALUATING CONCURRENT EDUCATION AND EXPERIENCE

When qualifying education and experience have been gained concurrently, credit is given for each in accordance with the time actually spent in each.

NORMAL WORK YEAR

In positions where the normal work year is less than the calendar year (teaching is the best example) the prevailing year of qualifying experience is accepted as 1 year of required experience, unless the standard specifies otherwise. If a year of teaching experience is acceptable for 1 year of qualifying experience, no additional length will be credited if a teacher accepts summer employment and obtains two or three additional months of qualifying experience. If a standard provides that teaching experience through a school year is acceptable for but nine months of the required experience, an applicant who has three months of summer employment in which is acquired qualifying experience of the same or a different type may be credited with a calendar year of experience.

EVALUATION OF TECHNICIAN EXPERIENCE FOR PROFESSIONAL POSITIONS

Generally, qualification standards for professional positions in grades GS–7 and above include a basic requirement of education leading to a bachelor's degree, or equivalent education and experience, and an additional requirement of appropriate professional experience. The additional requirement of professional experience is normally met by graduate education or performance of professional work subsequent to an individual having met the basic requirement for the entrance level. (In certain situations, nonprofessional experience, e.g., as a Student Trainee, may be substituted for the GS–7 requirements but not for the GS–9 professional experience requirements.)

Questions arise about the application of the professional experience requirement in the case of an employee who has served as a technician at grade GS–7 or above and who, after a period of service in such a capacity, meets the basic requirement for entrance into the profession (i.e., meets the requirement for the GS–5 level).

Special inservice placement provisions. In inservice placement actions only, technician experience may be accepted as equivalent to the professional experience required for the same grade, when all of the following four conditions are met:

1. The employee meets the basic qualification requirement of four years or more of education and/or experience specified for all

positions in the professional series as demonstrated by one of the following:

a. Satisfactory completion of the requirements for an appropriate bachelor's or higher degree is fully qualifying; or

b. Satisfactory completion of a minimum educational requirement of specified courses; or

c. For engineering positions only, passing the written Engineer-in-Training or professional registration examination administered by State Boards of Engineering Examiners.

2. The employee is being considered for reassignment from a technician position in grade GS–7 or above to a similar professional position in the same specialty area at the same grade or a lower grade.

3. The technician experience which is accepted in lieu of professional experience is quasi-professional in character and is of the GS–7 or higher grade level.

4. The duties, degree of responsibility and subject matter of the professional and technician positions are sufficiently similar to demonstrate clearly that the employee has the necessary background to perform satisfactorily the duties of the professional position to be filled.

Subsequent promotion or reassignment. After a reassignment is made under the above conditions, the reassigned employee will be expected to clearly demonstrate his ability to perform the work of his new position in a professional manner before he is either promoted to a higher grade professional position, in accordance with the standards for the higher grade, or reassigned to a professional position in a different kind of work or subject matter.

EXTRA CREDIT FOR CREATIVE RESEARCH OR DEVELOPMENT

For professional research and development positions that require a high degree of creativity, candidates who have made a significant, creative research or development contribution may be rated eligible for the next higher grade than that for which they would otherwise qualify under the standard requirements. However, this provision for an extra grade does not apply to candidates who qualify for a particular grade on the basis of meeting the graduate education requirements. Thus, to qualify for grade GS–13 research and development positions, candidates with a Ph.D. degree are required to show, in addition, at least one year of experience equivalent to the GS–12 grade level.

To receive this credit for an extra grade, a candidate must have achieved the distinction of making a significant, creative research or development contribution to the field. This research or development must have been on a hitherto unsolved problem or problems. It must have been creative in that it produced a basic principle, concept, method, approach, or technique. In addition to solving the specific problem, it should be applicable in the solution of other problems.

Section III. CREDITING EDUCATION

CERTIFICATES OF EQUIVALENCY OR PROFICIENCY AS SUBSTITUTES FOR HIGH SCHOOL EDUCATION REQUIREMENTS

A person who has obtained a GED High School Equivalency Certificate or a High School Proficiency Certificate awarded by a state or territorial-level Board or Department of Education is considered as having satisfied the high school education requirements in Handbook X–118 qualification standards. These certificates may be accepted in lieu of a high school diploma whenever high school graduation is a prerequisite in an examination or when education can be substituted as a part of the experience requirement.

ACCEPTANCE OF COLLEGE-LEVEL CREDIT PROGRAMS

Academic credit awarded by an accredited college or university through special credit pro-

grams e.g., College-Level Examination Program (CLEP), is accepted by the Commission toward meeting education requirements or as a suitable substitute for experience requirements.

ACCREDITED EDUCATION

Some qualification standards include a requirement for education completed in an accredited college or university. This requirement may be considered satisfied if the education is covered by one of the following:

1. The college or curriculum is accredited by an organization recognized for accreditation by the U.S. Office of Education or the Council on Postsecondary Accreditation (COPA). For reference use the *Education Directory, Colleges and Universities* published by the National Center for Education Statistics together with the Office of Education, U.S. Department of Health, Education and Welfare and *Accredited Institutions of Postsecondary Education* published for COPA by the American Council on Education. →NOTE: The COPA directory, *Accredited Institutions of Postsecondary Education*, includes institutions other than colleges and universities. Education in institutions identified in the COPA directory as offering a degree or degrees, and education in any accredited institution listed in the *Education Directory, Colleges and Universities* is acceptable under this provision for education in an accredited college or university. However, education in such institutions, listed in either directory, which do not offer a baccalaureate degree (i.e. offer associate degrees or the equivalent only) is creditable only toward the first two years of college education. Similarly, graduate study is acceptable only to the extent that the institution is identified as offering that level, or a higher level, of graduate education. Education in institutions listed in the COPA directory which do not offer degrees must be evaluated under other provisions. If the institution is identified as a home study institution, apply the provisions for HOME STUDY AND CORRESPONDENCE EDUCATION below. If the institution is identified as offering certificates or diplomas, apply the provisions of the individual qualification standard.) ←
2. The college is accredited by a State Department of Education, State Accrediting Commission or State University.
3. The specific courses have been accepted for advanced credit by an accredited U.S. college or university. → (See *Education Directory, Colleges and Universities* referenced above.)←
4. A State university (U.S.A.) reports the institution as one whose transcript is given full value, or full value in subject areas applicable to curricula at the State university. (See *Report of Credit Given by Educational Institutions*, American Association of Collegiate Registrars and Admissions Officers.)
5. The candidate presents evidence which clearly justifies a high evaluation of his competence such as one of the following:
   (a) Registration as a professional engineer or architect.
   (b) A substantial record of experience, achievement, and publications in the appropriate scientific field.

ACCEPTABILITY OF ACADEMIC CREDIT FROM NON-TRADITIONAL DEGREE PROGRAMS

Some colleges and universities offer degree programs that differ from the conventional 4-year course of study in structure, method and content. Greater flexibility is permitted in scheduling course work and academic credit is awarded for various learning experiences and activities including prior on-the-job work experience. When such academic credit has been granted by an accredited college or university, it may be accepted toward meeting qualification requirements in accordance with the following instructions:

1. In occupations for which minimum educational requirements have been established (see FPM Chapter 933, subchapter 1), academic credit for on-the-job work expe-

rience should not be accepted toward meeting the prescribed minimum education.

2. For any other professional occupation (not listed in FPM Chapter 933, subchapter 1), on-the-job experience for which academic credit is given must meet the criteria specified in the qualification standards for evaluating the equivalency of experience and education. It is important that experience and supplemental course work provide the basic concepts and principles and professional knowledges needed for a professional approach to the solution of problems. The professional should know where and how to find the answers; have the ability to select and apply theory to achieve results; exercise initiative in solving problems; have the ability to hold his or her own in a professional discussion; have the ability to write a technical report if required and possess other similar attributes. In determining the quality of the candidate's professional background the following types of considerations are important:
   (a) To be qualifying, the experience offered should show the use of judgment in applying professional principles. The experience should require more than the routine observation and recording of technical data. The experience should enable the candidate to advance in professional knowledge, and develop and mature in his professional judgment.
   (b) Professional employees must frequently weigh technical procedures and economic and business considerations in making decisions. Experience which provides for this type of analysis is indicative of true professional development.
   (c) Supervision by a professional or counselor capable of providing professional guidance and contributing to the professional growth of the candidate.
3. For all other occupations academic credit for on-the-job work experience may be accepted on the same basis as traditional course work, regardless of any reference in the standard to "resident study" or "residence school." Bachelor's degrees granted are accepted even though the standard may specify "a full 4-year course of study." When the educational substitution provision of the occupational standard requires a certain amount of study in a specified field, the requirement may be met earlier through traditional course work, or through academic credit for work experience in the pertinent field.

   When academic credit is expressed in contract months, units or other terms that differ from traditional quarter or semester hours, it may be necessary to request an interpretation of such credits from the appropriate college or university in order to equate them to the quarter or semester hours in the standards. Care should be taken not to grant credit for both education and experience based on the same period of experience.

EVALUATING FOREIGN EDUCATION CREDENTIALS

In evaluating foreign degrees and course work, the candidate is responsible for providing evidence that the education was of an acceptable quality and that he or she has acquired knowledges, skills or abilities for the work. Any of the following criteria may be accepted as appropriate evidence:

1. The specific courses have been accepted for advanced credit by an accredited U.S. college or university.
2. A State university (U.S.A.) reports the institution as one whose transcript is given full value, or full value in subject areas applicable to curricula at the State university.
3. The candidate submits an evaluation of the course work from an organization recognized for accreditation by the U.S. Office of Education or the Council on Postsecondary

Accreditation. (The organizations recognized for accreditation are listed in the *Education Directory, Colleges and Universities* and *Accredited Institutions of Postsecondary Education*. See paragraph 1 under ACCREDITED EDUCATION on page 12.)

4. The candidate submits an evaluation of the course work from an accredited U.S. college or university or by an organization recognized as specializing in interpretation of foreign educational credentials.
5. The candidate presents evidence which clearly justifies a high evaluation of his or her competence, such as one of the following:
   (a) Registration as a professional engineer or architect.
   (b) A substantial record of experience, achievement, and publications in the appropriate field.

HOME STUDY AND CORRESPONDENCE COURSE EDUCATION

In line with general Commission practice that all pertinent experience and training should be considered when evaluating applicants, home study, and correspondence courses which materially increase the capacity of the applicant to do the job to be filled should be considered and credited accordingly.

→Home study and correspondence courses which meet the provisions of paragraphs 1, 2 or 3 below are substitutable for required experience on the same basis as education completed in residence schools. Other ways in which home study and correspondence courses may be credited are discussed in paragraphs 4 through 6.←

1. Successfully completed home study or correspondence education may be substituted for required experience to the extent that such home study education is accepted for credit as the equivalent of residence study by accredited residence colleges and universities, State universities or as specifically provided in the qualification standard.

2. Successfully completed home study or correspondence education may be substituted for required experience to the extent that the home study education program has been evaluated and approved by a State department of education. Course work must have been evaluated by a State department of education for its equivalency to a specific amount of semester or quarter hours.

3. High School course work successfully completed with a home study or correspondence school accredited by→ The Accrediting Commission of the National Home Study Council← may be accepted as fulfilling education and experience requirements on the same basis as resident high school education. →(See the *Directory of Accredited Home Study Schools* issued by the Accrediting Commission of the National Home Study Council.)←

4. When home study or correspondence courses cannot be substituted for required experience, it is appropriate for an agency or Commission examining office to weigh and credit successful completion of appropriate home study courses along with other evidence of capabilities in making a relative ranking of candidates. For example, collateral credit or extra points might be added to the basic rating for particularly valuable home study.

5. In inservice placement actions where the agency requires the applicants to possess specific knowledges, abilities, or skills in addition to those required in the Commission's qualification standard, the agency may accept the completion of appropriate home study as a way in which applicants can demonstrate possession of those specific additional knowledges, abilities, or skills.

6. a. In planning agency training programs to provide employees with new, improved, or expanded capacities and abilities, appropriate home study education may properly be used to supplement the minimum requirements in the Commission's qualification standards.
   b. When advance Commission approval of agency training programs is obtained in the form of a training agreement, pertinent home study may be included in the training which can be accepted

INSTRUCTIONS TO USERS

in lieu of the usual requirements in the appropriate qualification standard. Training agreements may provide for this use of home study whenever it is evident that the use of home study is appropriate based on consideration of (1) the nature and content of the specific courses to be used and their relationship to the work to be done in the target position, (2) the effectiveness of the control which the agency can establish and maintain over the quality of the effort actually invested by the trainees in the home study courses, and (3) the effectiveness of the evaluation of the final capability of the trainees.

COMMON PATTERN OF GRADE ELIGIBILITY BASED ON GRADUATE EDUCATION

Following is the pattern of grade-level eligibility based on completion of graduate educa-

tion. This pattern is applicable to certain occupations. General criteria for the application of the Common Pattern are stated below. Specific instructions for its application are provided in the qualification standards for each series or occupation.

Matching Applicants With Jobs.—This pattern is based on the level of work that individual applicants should be able to perform on the basis of their educational backgrounds. This Common Pattern thus is concerned with the ability of individuals and does not reflect a change in position classification standards or in the kind or level of work classifiable in each grade.

Thus, an applicant is to be appointed to a specific grade level under the provisions of this pattern only when:

—the duties and responsibilities that will be assigned warrant the grade level; and

—the applicant's education is of a type and scope that gives assurance of his ability to perform such duties in a satisfactory manner.

The pattern, therefore, reflects the highest levels at which applicants with graduate education can be expected to perform successfully. In some instances, appointments of individual applicants to lower grades will be appropriate on the basis of (*a*) the grade-level value of the available duties, or (*b*) an evaluation of the applicant's capability in relation to the specific work to be assigned.

Criteria for Application of the Common Pattern.—Graduate education without experience is acceptable as a basis for full eligibility at appropriate grade levels in certain occupations provided the following criteria are met:

1. The study is in a subject-matter field or discipline that the appropriate qualification standard identifies as acceptable.
2. The appropriate qualification standard provides for acceptance of these fields of graduate education at the grade level being considered.

If the above criteria are met, the amount and level of graduate education must meet the minimum specified in the table on the following page for the grade being considered.

→**Year of Full-Time Graduate Education.**—The Common Pattern provides for eligibility at grades GS–7, GS–9, and GS–11 based on one, two and three years, respectively, of appropriate "full-time graduate education." There are differing practices among graduate schools in the extent to which credit hours are granted for various aspects of the total educational program (e.g., seminars, independent research, supervised field training or interships, thesis preparation) and in the number of credit hours that represent full-time study. Thus it is not realistic to attempt to define a year of graduate study in terms of any set number of semester hours.

In all occupations to which the Common Pattern is applicable, a "year of full-time graduate education" is to be applied in terms of the number of credit hours which the school attended determines to represent a full year of study in that graduate program. Part-time graduate education is also to be evaluated in terms of its equivalency to what the school determines to be a full year of study in the appropriate graduate program. Schools are to be asked to make these determinations on the basis of normal course loads for a full year of study in the graduate program involved; not on the basis of criteria the school may have established for recognition as a "full-time student" for registration, tuition, grants, or similar administrative purposes. Often the credit hour criteria for such administrative purposes are lower than what would be considered a full course load in the same school.

The above criteria for evaluating "full-time" and "part-time" graduate study supersede any contrary provisions of the qualification standards in Part III of this Handbook for occupations to which the Common Pattern is applicable.←

Applicability of the Common Pattern.—The Common Pattern is applicable in certain occupations (except those specifically excluded be-

Grade eligibility table based on graduate education

Grade level	Minimum amount or level of graduate education in *appropriate* specialty
GS–7	One year of full-time graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree.
GS–9	Two years of full-time graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph.D. or equivalent).
GS–11	Three years of full-time graduate education.
GS–11 research positions	Completion of all requirements for a master's or an equivalent degree based on at least 2 years of full-time graduate education when— 1. The position is in a *professional* series and involves primarily *research or creative or advanced scientific work* such as exploratory engineering developm nt, architectural planning, or mathematical analysis. 2. The knowledges required for the work are *typically and preferably* acquired through graduate study. 3. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-11 level after a short orientation period.
GS–12 research positions	Completion of all requirements for a doctoral degree (Ph.D. or equivalent) for appointment to such positions as meet the following criteria: 1. The position is in a *professional* series, and involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. 2. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph.D. or equivalent) level. 3. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

low) for which the appropriate qualification standard identifies

—the subject-matter fields which are appropriate;

—the grade levels at which such fields of graduate education are acceptable.

Excluded Occupations.—Excluded from the application of this Common Pattern are the following professions which involve specialized educational programs requiring special treatment. The patterns of education and experience described in the appropriate standards for the following series are essential to assure the competence of persons practicing these professions.

GS–602, Medical Officer Series
GS–660, Pharmacist Series
GS–662, Optometrist Series
GS–668, Podiatrist Series
GS–680, Dental Officer Series
GS–701, Veterinary Medical Science Series
GS–905, General Attorney Series

SUPERIOR ACADEMIC ACHIEVEMENT STANDARD

Purpose.—The superior academic achievement standard has the primary objective of enabling the Federal service to obtain its fair share of top quality college graduates within a

framework of sound position classification, improved position management, administrative efficiency, and economy. It is intended to attract outstanding college graduates by offering:

(a) incentives of higher grades and thus higher pay,
(b) challenging assignments commensurate with the higher grades and the qualifications of the employee,
(c) recognition of their superior academic achievement, and
(d) improved career opportunities for promising candidates.

Criteria for Eligibility.—*GS–7.*—Persons who have completed all the requirements for or are candidates for the bachelor's degree from an accredited college or university within 9 months (with appropriate majors or course credits, if required) may be rated eligible for GS–7 provided they meet *one* of the requirements listed below.

a. Standing in the upper third of their class based on completed college work at time of application for the position. This is the upper third of the class in the college or university, or major subdivision (e.g., school of engineering, school of business administration).
b. College grade average of "B" (2.90 of a possible 4.0) or better or equivalent. This is either:
   (1) the average of all completed college courses at time of application for the position, *or*
   (2) the average of all college courses completed during the last 2 years of the undergraduate curriculum.
c. College grade average of B+ (3.5) or better (or equivalent) in their major field, where such field is fully qualifying and directly applicable to the specialty field of the position to be filled. This is either:
   (1) the average of completed courses in the major field at time of application for the position, *or*
   (2) the average of college courses completed in the major field during the last 2 years of the undergraduate curriculum.
d. Election to membership in Phi Beta Kappa, Sigma Xi, or one of the national honorary scholastic societies meeting the minimum requirements of the Association of College Honor Societies, other than freshman honor societies. (See Appendix →A← for the list of honor societies acceptable under this standard.)

Senior students may be rated provisionally eligible under b(2) or c(2), provided they had the required average in the junior year. They will be required to submit evidence at the time of appointment that the required average was maintained during the senior year.

Combinations of Superior Academic Achievement and Subsequent Professional Work Experience.—Persons who have met one of the superior academic achievement provisions for GS–7 defined above, and who have subsequently obtained professional experience in industry or elsewhere may be rated eligible for professional positions at GS–9, provided that at least 1 year of their professional experience has been directly pertinent to the specialty field for which application is made and at a level of difficulty and responsibility equivalent to the GS–7 level in the Federal service.

Position Coverage.—*GS–7.*—The superior academic achievement standard for GS–7 may be used to fill positions which satisfy all of the following criteria:

1. The position is, in part, an advanced trainee position in which the work clearly offers opportunity for advancement to nonsupervisory journeyman-type positions at higher levels upon attainment of required job skills and knowledges.
2. The position does not require prior experience.
3. The position is identified as being in a line of work properly classified at two-grade intervals. (For some occupations which do not satisfy this criterion, the superior academic achievement standard may be

used to fill advanced-trainee type positions at GS–6.)

Coordination of Position-Classification and Qualification Requirements.—The matching of positions and candidates who qualify on the basis of superior academic achievement presents position-classification and position-management considerations and problems which require special attention. It is especially important that applicants appointed at grade GS–7 on the basis of superior academic achievement be assigned to work that fully meets the position-classification standards for that grade.

Work that is not routine and standardized usually requires employees with various kinds of abilities and skills. Intelligent manpower planning and recruitment will assure a balanced work force providing a range of skills and training realistically related to the kinds and levels of work to be performed. Recruitment should utilize all of the appropriate entry levels of each occupation. Further, adequate provision should be made for the employment and effective use of such supporting staff as technicians, office assistants, and aides.

The training provided to new employees must be geared to the background of the individual employee and to the requirements of the target job for which he was hired.

Application of the Standard.—Applications will be accepted from students who expect to complete requirements for the degree within 9 months from date of application. Students who are qualified in all other respects may receive provisional appointments but may not enter on duty until they have completed all requirements for the degree, including the thesis where required.

Eligibility must be based on demonstrated academic achievement. Where it is not practical to obtain evaluations from school officials, other means may be used to determine whether candidates have demonstrated superior ability. For example, honorable mention in a National Science Foundation fellowship may be accepted as evidence of the required superior ability.

In filling positions for which the superior academic achievement standard is applicable, eligibles will be certified in the usual order unless an agency's request specifically indicates that the position to be filled requires professional experience.

For purposes of sound position classification and position management, agencies are encouraged to take appropriate steps to give superior graduates carefully planned assignments and unusually intensive supervision and training for the first several months after appointment to assure rapid development to the full performance level of the grade.

The criteria in this standard for superior academic achievement and for position coverage supersede the criteria which appear in individual standards published prior to this issuance.

STUDENT TRAINEE

College graduates who have had preprofessional student trainee experience (in government or industry) may have such experience credited towards meeting the specialized professional experience requirements for GS–7, in full, if all of the following requirements are met:

a. It was closely related to and integrated with the college career.
b. The candidate successfully completed 12 months of student trainee experience which included one period (no less than 60 days) equivalent to work at the GS–5 level in the Federal service, or at least 15 months of student trainee work experience in a cooperative work-study educational curriculum which included one work period equivalent to work at the GS–4 level in the Federal service.
c. The work experience contributed directly and progressively to the development of professional competence in the specialized field of the position to be filled.

Less than full credit will be allowed on a month-for-month basis toward meeting the specialized experience requirement for GS–7 provided that the student trainee experience in-

cluded a work period equivalent to work at the GS–4 level in the Federal service.

EDUCATION AS AN EXTENSION OF EXPERIENCE

Under certain conditions, education or training received by employees who are detailed at full pay or are granted leave without pay for the purpose of obtaining specialized knowledges and skills may be counted as experience towards promotion. Thus, for the purposes of meeting the qualifications requirement of 1 year of experience at the grade next below, such education or training may be credited for in-service placement actions as experience in the position held, provided that (1) the agency determines that the education or training contributes materially to the competence of the employee in a line of work directly related to that of the position held and the position to be filled, and (2) *the candidate demonstrates that he possesses the knowledges and abilities needed for successful performance of the work of the position to be filled.* The education may be evaluated on its own merits as an alternative to its evaluation as an extension of experience, but may not be given credit both as experience and as education. The decision as to the method of evaluation should be resolved in favor of the better rating being assigned.

Examples:

1. Mathematician GS–9 with bachelor's degree is authorized to take leave without pay to attend school for graduate work in mathematics. Period at school may be credited in promotion examinations for Mathematician GS–11 as GS–9 experience toward the requirement of 1 year at GS–9 or equivalent. A separate evaluation would need to be made of the quality of experience in terms of the knowledges and abilities required for the GS–11 position.

2. An Electronics Technician GS–9 is detailed at full pay to a manufacturer's plant to learn how to install and maintain specialized electronic equipment. The period on detail may be credited in promotion examinations for Electronics Technician GS–11 as GS–9 experience in the specialization appropriate to the equipment studied.

3. A Civil Engineer GS–12 is detailed at full pay to a school of business administration to learn management techniques. The period on detail at school may be credited in a promotion examination for Civil Engineer GS–13 as GS–12 experience provided that management ability is a requirement of the GS–13 position. Such period on detail would not be creditable toward a nonsupervisory research position in civil engineering.

AMENDMENT OF EDUCATIONAL REQUIREMENT FOR MOST PROFESSIONAL POSITIONS IN SCIENCE AND TECHNOLOGY

Objective.—It is the intent of this amendment to modify the basic educational requirements for positions in a discipline so that examiners may exercise professional knowledge and judgment in evaluating the qualifications of persons with a bachelor's or higher degree, whose completed education in large measure conforms, but not completely, to specified course requirements, but whose experience and education clearly demonstrate possession of the knowledges and abilities required for professional work in the occupation. This amendment is designed to provide increased cross-series mobility and to permit appropriate evaluation of the qualifications of competent scientists and engineers who graduated a number of years ago under less demanding educational standards. The intent is to maintain the same high level of the basic standard by permitting the candidate to offer proven professional competence as a scientist or engineer that compensates for nonconformance to formally-specified academic course work.

Background Observations on Concepts.—The discussion of concepts in the following ten numbered paragraphs is intended to provide a convenient frame of reference for common understanding of the principles underlying the amendment and to provide an appropriate basis for the application of judgment in applying educational requirements.

1. The established academic disciplines (chemistry, aeronautical engineering, pharmacy, accounting, forestry, statistics, psychology, etc.) which are defined and recognized as professions by academic institutions, industry, and Government provide the basic framework for the classification of technological and scientific positions. These disciplines or professions play key roles in career ladders and career opportunities for professional employees. In general there is a strong and important bond between the employee and his profession. Accordingly, the academic disciplines exert a fundamental influence on the occupational structure of professional positions in the Federal service.

2. The academic disciplines provide a complex framework with varying degrees of accommodation to contemporary problems. The various disciplines involve common or overlapping source materials, principles, methods, and techniques which change with advances in science and technology. There are corresponding changes in the relationships of the disciplines, that is, the physics of yesterday is the engineering of today. Also as science and technology advance and problems and investigations become more complex, new fields of knowledge are developed. These are sometimes not identifiable with existing disciplines.

3. Scientific endeavor does not lend itself fully to the compartmentalization implied in classification based on the separate disciplines. Positions in one discipline may be closely related to positions in another discipline. The objectives, functions, activities and subject matter of positions in separate disciplines may be quite similar. Almost all professional positions involve work which is to some extent characteristic of two or more disciplines. Many professional positions, particularly vacant positions, are equally classifiable in more than one of the series established on the basis of the academic disciplines.

4. A basic objective of professional education is to develop the depth of insight and breadth of knowledge needed as a base for future learning and for progressing into one of many specialties. Thus, professional education typically provides the knowledge and ability needed to adapt principles, methods, and techniques of related disciplines and the basis for learning and growing with new developments in science and technology. For example, chemists characteristically receive intensive training in mathematics and physics, and in areas that overlap chemistry and physics. This training provides a foundation for future professional development in physics. Thus, a chemist working with physicists in coordinated team research on the physical and chemical properties of polymers typically has the basis for acquiring through experience and informal study those knowledges needed for professional work as a physicist in that occupational area.

5. Thus, a scientist is frequently well qualified to perform successfully work in a discipline other than that in which he received his academic training. This situation is most evident in positions which primarily require ability to administer or coordinate activities of broad scope and positions which involve work in subject-matter or functional areas common to two or more disciplines. It has, however, more general applicability. For example, important research in acoustics has been carried out by persons educated as chemists.

6. Academic study in a field of science leading to a bachelor's degree has its greatest value not in the specific factual knowledge implanted in the student as an end objective in itself but in the provision of knowledges and abilities that establish a base for continuing study and development, formal or informal, needed to advance or keep abreast of the state of the art. As time and science progress, the specific subject content of undergraduate curricula becomes less and less important and may in part become obsolete. A startling illustration of obsolescence of academic instruction is provided by the recent discovery of chemists at the Argonne National Laboratory that xenon and fluorine react readily to form xenon tetrafluoride, notwithstanding the long-established belief that xenon and other noble gases are chemically inert.

INSTRUCTIONS TO USERS

7. A present day course of study leading to a bachelor's degree in a field such as physics, physiology, or mathematics which includes a specified number of semester hours in the major field is characteristically quite different from a course of study of 30 or even 20 years ago with the same number of semester hours in the same major field. The scientist who graduated 20 years ago and who is competent to perform truly professional work in his specialty has had to engage in continuous study to keep abreast of his specialty or to enter whole new specialties which did not exist to be taught in his undergraduate courses. Thus, it is really quite immaterial whether the undergraduate curriculum of 20 years ago included 20, 24, or 30 semester hours in the major field.

8. The completion of courses of certain specified subject content is essential to meet the intensive requirements of entrance or junior-level professional positions—positions that are designed largely to bridge rapidly and satisfactorily the gap between the bachelor's degree and professional competence in a given field. For professional scientific positions at the entrance levels, a lesser or different educational preparation would tend to preclude the rate of advancement and the potential development into any of several diverse specialties which are essential characteristics of these positions. However, for persons who have achieved a status of scientific competence the specific subject content of their basic educational background is of less significance.

9. The increasing complexity and explosive advance of science and technology, the breadth and depth of knowledge required for truly professional work, and the importance of the contributions which may be produced by a truly creative scientist make essential both (a) that technician-type persons with inadequate fundamental knowledge and insight be denied employment in positions requiring professionally qualified persons, and (b) that professionally qualified persons with superior ability but atypical educational background *not* be denied employment because of artificial barriers.

10. The knowledge required for the work of a professional scientific or engineering position in a narrow specialty is characteristically very broad in scope in terms of required knowledge of related and underlying science and technology. Thus, in evaluating the qualifications of candidates for such positions it is necessary to consider both the required knowledge of the specialty field and the required knowledge of the peripheral or related fields. In some situations, the possession of thorough knowledge or related and, in particular, underlying fields may compensate for deficiences in knowledge of the specific subject-matter field of the position.

Amended Educational Requirement

For professional positions for which an educational requirement of a bachelor's degree in a specified field, or of specified courses leading to a bachelor's degree, is set forth in qualification standards issued by the U.S. Civil Service Commission, the requirements are amended to include, as appropriate, substitution of the following:

Successful completion of a full course of study in an accredited college or university leading to a bachelor's or higher degree in an appropriate field of science or technology which does not fully satisfy the basic educational requirement specified for the occupational field of the positions to be filled, provided that (a) the candidate has successfully demonstrated the ability to perform fully professional work of the GS-12 grade level in an appropriate field of science or technology; and (b) a panel of at least two persons who have professional standing in the discipline or specialty field of the positions to be filled have determined that the candidate has demonstrated a good knowledge of (1) the specialty field of the positions to be filled *and* (2) related and underlying fields of science and technology, that equals or exceeds in breadth, depth, currency, and level of advancement that normally obtained in successful completion of a full 4-year current course of study which satisfies the specified educational requirement except for literal nonconformance to the specified educational requirement for the occupational field, the candidate's education, training, and experience fully meet the applicable qualification standard.

Discussion of amendment.—The amendment provides three basic criteria: (a) level of

professional ability, (b) pertinency of knowledge, and (c) general conformance otherwise to the requirements of the applicable qualification standard. All three of these criteria must be satisfied for application of the amendment.

The term "an appropriate field of science and technology" as applied to the education or professional ability of the candidate includes any professional field in the physical, social, biological, mathematical, medical, agricultural, or behavioral sciences or in areas of technology such as engineering, architecture, and urban planning. An "appropriate field" is one which bears relationship to the field of the position such that there is a reasonable contribution to the ability of the candidate to perform professional work in the field of the position to be filled. This contribution may be found in relatedness of subject knowledge, in the use of basic mathematical or statistical tools, or in the ability to approach complex problems through scientific methodology.

The "ability to perform fully professional work of the GS–12 grade level" is characterized by the ability to tackle novel problems for which the background knowledge of the professional and the available guides do not provide ready approaches to their solution. This requirement may be satisfied by one or more years of professional experience which is equivalent to the GS–11 grade level and of required quality, by demonstrated superior ability in completion of the requirements for the Ph. D. degree, or by a record of accomplishment of creative research and development.

This requirement of GS–12 competence does not preclude application of the amendment to positions at GS–9 and GS–11. In some situations, candidates eligible at GS–12 may be interested in positions at lower grades, as for example, to obtain appointment at a particular location.

The "panel of at least two persons who have professional standing in the discipline or specialty field" would typically include professional members of the rating panel in open competitive examinations. In noncompetitive examinations, consultants from academic institutions, private industry, or other agencies may also be utilized. In some scientific organizations, established promotion panels or panels for the evaluation of research positions may be available.

The phrase "professional standing in the discipline or specialty field" should be interpreted to also include scientists and engineers qualified primarily in disciplines other than that of the position to be filled but who have substantial responsibility for supervision or management of work in the pertinent discipline or specialty field.

In evaluating the equivalence of the candidate's knowledge to that required by the basic educational requirement of the applicable qualification standard, special consideration should be given to the graduate education, if any, of the candidate. Graduate education may be of particular significance in compensating for deficiencies in required undergraduate education.

Minimum educational requirements are generally expressed in terms of the requirements for a bachelor's or higher degree. However, some of the older standards omit the higher degree alternative. In any such case a master's or higher degree is always acceptable as meeting the "bachelor's degree" portion of the requirements. Moreover, a master's or higher degree in the discipline of the position not only satisfies the minimum educational requirement of a bachelor's degree but meets the total educational requirements for the position as though it were preceded by a bachelor's degree in the same field. In determining the equivalence of completed graduate courses to those specified in the educational requirement full credit should be allowed for prerequisite courses which were waived by the academic institution. Thus, completion of the requirements for a master's degree in a discipline will characteristically be acceptable as directly satisfying the basic educational requirement of specified courses in that discipline.

The "specialty field of the position" may be identified as a discipline, an option or suboption

in an examination, or a specialization identified in the position-classification standard for the occupation.

The qualifications of candidates should be evaluated in terms of their ability to perform competently in the broad spectrum of positions in the specialty field rather than in terms of their ability to perform the work of a specific position in the specialty field. In some situations, a scientist or other professionally qualified employee demonstrates through close association the ability to perform the work of a specific position in a related discipline but does not appear to be competent across the range of positions in the specialty field. In such cases, the foregoing amendment should not be applied. If appropriate, the position may be formally identified as interdisciplinary and the scientist assigned to the position would retain identification in the discipline reflecting his qualifications and career pattern. In other cases, it may be possible to restructure the position so that it may be classified in the series appropriate to the qualifications of the employee. (See instructions in Section I of Part II of this Handbook on "Flexibility in Staffing Professional Positions" and "Determining the Appropriate Qualification Standard.") Multidisciplinary matching of professional employees and positions requires integrated consideration of the advantages and disadvantages of position classification and qualification examining techniques, with particular attention to the career potential and goals of the employee, to determine the optimum approach in a specific case situation.

In determining the extent to which candidates meet the knowledge requirement of item (b) of the amendment full consideration should be given to all of the candidate's education and experience with appropriate balance of the factors of breadth, depth, currency, and level of advancement. It should also be noted that the knowledge requirement is equivalence, not identity, to the total scientific and technological content of a full 4-year course of study which satisfies the educational requirement rather than to the educational requirement alone. Thus, appropriate consideration needs to be given to the combination of knowledge of the specialty field and of knowledge of related and underlying fields. As indicated in the preceding background observations, the knowledge of underlying scientific fields may well compensate for deficiencies in knowledges of an applied subject-matter field.

The requirement of item (c) is intended to assure maintenance of the full level of competence intended by the applicable qualification standard. Thus, in addition to demonstration of the equivalent of the specified basic educational requirement for all positions in the occupation, the candidate must also satisfy the requirement of additional specialized education and experience required for eligibility at a particular grade level and option. In most cases where the candidate's undergraduate education does not fully satisfy the basic educational requirement, substantially more than 3 years of experience may be necessary in order to meet this specialized experience requirement. In evaluating the experience obtained under a title other than that of the discipline of the position to be filled, full credit, of course, should be given to experience which contributes fully and directly to professional competence in the discipline.

Illustrations.—1. The minimum educational requirement for metallurgist positions is 20 semester hours in Metallurgy. A candidate with a bachelor's degree in chemistry, a Ph. D. in solid state physics which included substantial course work in physical metallurgy, and several years of interdisciplinary physics-metallurgy research experience may not satisfy the present minimum educational requirement. To the extent that his education and experience did provide approprite knowledge of physical metallurgy and related sciences the candidate may be rated eligible for physical metallurgist positions but not for extractive or production metallurgist positions.

2. The minimum educational requirement for chemist positions is 30 semester hours with a specified distribution of courses in chemistry.

A candidate with major study in chemistry who graduated 20 years ago with 26 semester hours in chemistry may be rated eligible if his progressively responsible professional experience as a chemist furnished the required current knowledge of chemical concepts and techniques as evidenced by his publications, accomplishments, and experience.

3. The minimum educational requirement for wildlife biologist positions is 30 semester hours in biological science with a specified distribution of courses. A candidate with a major in plant science with very little academic training in zoology and wildlife biology may, through long experience working on wildlife biology problems in close association with wildlife biologists, acquire sufficient knowledge of wildlife biology to be able to perform the work of certain wildlife biology positions in the organizational unit. Such an employee would typically not satisfy the knowledge criterion (b) of the amendment and he should not be qualified as a wildlife biologist. However, if the employee were to complete a number of graduate courses in zoology and wildlife biology which together with his undergraduate training approach reasonably close to the specified distribution of courses in the minimum educational requirements, his knowledge of wildlife biology and related sciences may be evaluated as fully equivalent in breadth, depth, currency, and level of advancement to that specified in the requirements. He may then be qualified generally for the variety of kinds of positions in the occupational specialty.

Applicability of amendment to published qualification standards.—The amendment is a general change in educational requirements for professional positions in grades GS–9 and above for application as an alternate provision of standards whenever warranted. The amendment is applicable in open-competitive examinations rated by panels of professionally qualified examiners where it has been determined that it is meaningful and practicable to apply the amendment. Inservice placements may be made under the provisions of the amendment without prior approval by the Civil Service Commission.

The amendment does not apply to occupations such as medical officer or counseling psychologist for which published minimum educational requirements specify graduate education beyond the bachelor's degree, or to occupations such as nurse, teacher, or therapist with licensing, certification, or similar requirements which are inconsistent with the amendment. The amendment is not applicable to positions at the GS–5 and GS–7 grade levels.

A number of standards for professional occupations have less restrictive provisions for acceptance of education in related fields; these provisions of standards are not superseded by the amendment. For example, for engineering research positions a bachelor's degree in a physical science may be accepted under conditions specified in the engineer qualification standard in lieu of a degree in engineering. This amendment does not modify the provisions for acceptance of the degree in the related field; it does, however, suggest the desirability of panel evaluations in such cases.

It is apparent that for some occupations it may be desirable to provide additional cross-series mobility or alternative educational requirements under conditions other than those specified in the amendment, e.g., at entrance levels. In the further review and development of educational requirements for individual disciplines the criteria of the general amendment may be extended or modified to suit the specific characteristics and requirements of the field under consideration.

Some qualification standards for professional occupations, e.g., design engineer, architect, cartographer, and historian do not include a minimum educational requirement; that is, candidates without formal education leading to a bachelor's degree may qualify on the basis of experience, or a combination of education and experience, which is evaluated as the equivalent of a degree in an appropriate field. The qualification standards for such professional occupations characteristically encourage the ap-

plication of judgment in evaluating the quality and relatedness of education and experience in diverse fields, such that the flexibility of the amendment is typically built into the basic standard. Nevertheless, to the extent that there is a need for the amendment, it may be applied to such standards which do not include positive or minimum educational requirements.

Section IV. WRITTEN AND PERFORMANCE TESTS

The Office of Personnel Management does not normally *require* that an agency administer a written or performance test in inservice placement actions. In most instances, the agency can satisfactorily determine the employee's ability to do the job to be filled through some other means, such as from his/her previous employment background or other indications of his/her knowledges, skills and abilities. There are, however, a few positions for which a written or performance test is considered to be an essential device to help determine an employee's ability. The Office of Personnel Management, therefore, requires that an employee pass or have previously passed the current appropriate written or performance test before initial assignment to any of the following occupations:

(a) Reporting Stenographer, GS–312
Shorthand Reporter, GS–312
Closed Microphone Reporter, GS–319

(*Note:* Candidates for the above positions must pass a dictation test at the appropriate speed OR present a certificate attesting to the required degree of proficiency on a form acceptable to the Office of Personnel Management. See the qualification standard for specific test requirements for these positions.)

(b) Engineer, GS–800 (any series)
Librarian, GS–1410

(*Note:* For these occupations the test is required only if the applicant does not meet certain educational or other requirements which are specified in part III of this handbook, or in single-agency qualification standards. The written test for Engineer is the Engineer-in-Training Test administered by State Boards of Engineering Examiners.)

(c) Air Traffic Control Specialist (all specializations), GS–2152

(d) Certain single-agency occupations for which the single-agency qualification standard requires the test for both competitive and inservice placement actions.

(*Note:* The only exceptions to the above test requirements are those which occur when one of these positions is filled through one of the types of inservice placement actions specified in FPM Chapter 338, subchapter 4.)

In other occupations, the qualification standards allow waiver of the written test for inservice placement actions. The agency may specify the written test as one of several methods to be used in evaluating employees, provided the approval and use of the written test conforms to the guidelines in FPM Chapter 335 and FPM Supplement 335–1. Tests used for inservice placement actions may *not* be used on a pass-fail basis, except in those occupations listed above, for which OPM *requires* the test.

Appointments outside of registers.—Agencies must apply the written test in making temporary appointments outside of registers when it is a requirement under the standard. If any agency finds it is unable to administer a written test, when required, in the metropolitan area of Washington, D.C., the central office of OPM will determine whether the test shall be waived or will itself administer it. In any recruiting for positions filled under the jurisdiction of an OPM regional office, the regional director will determine whether the test shall be waived or whether the regional office will administer it.

Section V. PHYSICAL REQUIREMENTS

GENERAL

Each qualification standard indicates which of the standard physical requirements paragraphs shown below is applicable. Any additional specific physical requirement for an individual position is contained in the standard itself.

In addition to the physical requirements contained in each of the standard paragraphs below, applicants must be physically able to perform efficiently the duties of the position. Any physical condition which would cause the applicant to be a hazard to himself/herself or others is disqualifying.

STANDARD PARAGRAPHS

1. For most positions, good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. However, a few positions may exist which are suitable for the blind. Ability to hear the conversational voice, with or without a hearing aid, is required. An amputation of arm, hand, leg, or foot, with or without prosthesis, will not disqualify an applicant for appointment if he/she is able to perform satisfactorily the duties of the position.

2. Good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required for most positions; however, some positions may be suitable for the deaf. In most instances, an amputation of arm, hand, leg, or foot will not disqualify for appointment, although it may be necessary that this condition be compensated by use of satisfactory prosthesis.

3. Good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required. In most instances, an amputation of arm, hand, leg, or foot will not disqualify an applicant for appointment, although it may be necessary that this condition be compensated by use of satisfactory prosthesis.

4. Good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required for most positions; however, some positions may be suitable for the deaf. In most instances, an amputation of leg or foot will not disqualify an applicant for appointment, although it may be necessary that this condition be compensated by use of satisfactory prosthesis.

5. Good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required. In most instances, an amputation of leg or foot will not disqualify an applicant for appointment, although it may be necessary that this condition be compensated by use of satisfactory prosthesis.

6. Good distant vision in each eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required for most positions; however, some positions may be suitable for the deaf. In most instances, an amputation of leg or foot will not disqualify an applicant for appointment, although it may be necessary that this condition be compensated by use of satisfactory prosthesis.

INSTRUCTIONS TO USERS

7. Good distant vision in each eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required.

In most instances, an amputation of leg or foot will not disqualify an applicant for appointment, although it may be necessary that this condition be compensated by use of satisfactory prosthesis.

8. Good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid is required for most positions; however, some positions may be suitable for the deaf. An amputation of arm, hand, leg, or foot will ordinarily disqualify an applicant for appointment.

9. Good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid is required. An amputation of arm, hand, leg or foot will ordinarily disqualify an applicant for appointment.

10. Applicants must have good distant vision in each eye to qualify for appointment to most positions; however, there may be some positions suitable for persons with good vision in one eye only. Applicants must be able to read without strain printed material the size of typewritten characters, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required for most positions; however, some positions may be suitable for the deaf. An amputation of arm, hand, leg, or foot will ordinarily disqualify an applicant for appointment.

11. Applicants must have good distant vision in each eye to qualify for appointment to most positions; however, there may be some positions suitable for persons with good vision in one eye only. Applicants must be able to read without strain printed material the size of typewritten characters, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required. An amputation of arm, hand, leg, or foot will ordinarily disqualify an applicant for appointment.

12. Good distant vision in each eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required for most positions; however, some positions may be suitable for the deaf. An amputation of arm, hand, leg, or foot will ordinarily disqualify an applicant for appointment.

13. Good distant vision in each eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required. An amputation of arm, hand, leg, or foot will ordinarily disqualify an applicant for appointment.

14. For ground-level or floor-level activities, good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required for most positions; however, some positions may be suitable for the deaf. In most instances, an amputation of leg or foot will not disqualify an applicant for appointment, although it may be necessary that this condition be compensated by use of satisfactory prosthesis.

For activities performed above ground levels or floor levels, good distant vision in each eye, with or without glasses, is essential. Requirements for vision, other than distant vision, and for hearing are the same as those stated above. An amputation of arm, hand, leg, or foot will ordinarily disqualify an applicant for appointment.

15. For ground-level or floor-level activities, good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required.

In most instances, an amputation of leg or foot will not disqualify an applicant for appointment, although it may be necessary that this condition be compensated by use of satisfactory prosthesis. For activities performed above ground levels or floor levels, good distant vision in each eye, with or without glasses, is essential. Requirements for near vision and hearing are the same as those stated above. An amputation of arm, hand, leg, or foot will ordinarily disqualify an applicant for appointment.

16. Applicants must have good distant vision in each eye to qualify for appointment to most positions; however, there may be some positions suitable for persons with good vision in one eye only. Applicants must be able to read without strain printed material the size of typewritten characters, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required. In most instances, amputation of arm, hand, leg, or foot will not disqualify an applicant for appointment if he is able to perform the duties of his position efficiently and with safety, although it may be necessary that this condition be compensated by use of satisfactory prosthesis.

APPENDIX A TO PART II

COLLEGE HONOR SOCIETIES ACCEPTABLE UNDER THE SUPERIOR ACADEMIC ACHIEVEMENT STANDARD

Listed below are all college honor societies in which membership is qualifying for grade GS–7 eligibility under the provisions of the superior academic achievement standard, (Section III). All honor societies—except freshman societies—which meet the minimum requirements of the Association of College Honor Societies are acceptable under this provision of the superior academic achievement standard, and all organizations listed meet the association's requirements. Therefore, the list below includes all honor societies—except freshman societies—listed in *Baird's Manual of American College Fraternities* and the *Association of College Honor Societies: Booklet of Information* published by the Council of the Association of College Honor Societies.

The following list may be subject to revision in accordance with changes in the membership requirements of college societies as indicated in subsequent editions of *Baird's Manual* or of the *Booklet of Information.*

Alpha Chi
Alpha Epsilon
Alpha Epsilon Delta
Alpha Kappa Delta
Alpha Kappa Mu
Alpha Omega Alpha
Alpha Pi Mu
Alpha Sigma Mu
Alpha Sigma Nu
Beta Gamma Sigma
Beta Kappa Chi
Beta Phi Mu
Chi Epsilon
Delta Epsilon Sigma
Delta Mu Delta
Delta Phi Delta
Delta Sigma Rho-Tau Kappa Alpha
Eta Kappa Nu
→ Gamma Pi Epsilon ←
Gamma Sigma Delta
Gamma Theta Upsilon
Iota Sigma Pi
Kappa Delta Pi
Kappa Gamma Pi
Kappa Mu Epsilon
Kappa Omicron Phi
Kappa Tau Alpha
Lambda Iota Tau
Mortar Board
National Collegiate Players
Omega Chi Epsilon
Omicron Delta Epsilon
Omicron Delta Kappa
Omicron Kappa Upsilon
Omicron Nu
Order of the Coif
Phi Alpha Theta
Phi Beta Kappa
Phi Kappa Phi
Phi Sigma
Phi Sigma Iota
Phi Sigma Tau
Pi Delta Phi
Pi Gamma Mu
Pi Kappa Lambda
→ Pi Lambda Theta ←
Pi Mu Epsilon
Pi Omega Pi
Pi Sigma Alpha
Pi Tau Sigma
Psi Chi
Rho Chi
Sigma Delta Pi
Sigma Gamma Epsilon
Sigma Gamma Tau
Sigma Pi Sigma
Sigma Tau
Sigma Tau Delta
Sigma Theta Tau
Sigma Xi
Tau Beta Pi
Tau Sigma Delta
Xi Sigma Pi

Part Three

QUALIFICATION STANDARDS

QUALIFICATION STANDARD

SUPERVISORY POSITIONS IN GENERAL SCHEDULE OCCUPATIONS

(GS–15 and below)

CONTENTS

	Page
PART I: INTRODUCTION AND COVERAGE	1
PART II: KINDS OF SUPERVISORY POSITIONS	1
PART III: MINIMUM QUALIFICATION REQUIREMENTS	2
A. Supervisory or Managerial Abilities	2
B. Personal Attributes	3
C. Technical Requirements	4
PART IV. EVALUATING CANDIDATES FOR SUPERVISORY POSITIONS	4
A. Interviews	5
B. Written Tests	5
C. Qualifications Investigations	5
PART V: AREA OF CONSIDERATION AND SELECTIVE PLACEMENT	5
PART VI: SUGGESTED METHOD FOR ANALYZING JOB REQUIREMENTS AND EVALUATING CANDIDATES	6
A. Determining Job Requirements	6
B. Assessing Candidates' Potential for Supervisory Positions	7
C. Screening and Ranking Candidates	8
Qualification Analysis and Assessment of Potential Form	9

Supervisory Positions in General Schedule Occupations[1,2]

PART I: INTRODUCTION AND COVERAGE

The success of any organization is directly related to the capacity and skill of the supervisors, line managers, and executives who make the decisions and direct and lead others in the accomplishment of the organization's mission. It is natural then that selection of competent supervisors is a primary and continuing concern of every effective organization. To achieve the selection of able supervisors, this qualification standard prescribes minimum requirements for supervisory positions and provides guidance for evaluating the qualifications of candidates for such positions.

The standard makes clear that supervisory positions may be staffed with persons who have not had specific supervisory experience provided they meet criteria of essential supervisory or managerial aptitudes. It provides guidance in the qualitative evaluation of these aptitudes. The standard also emphasizes the necessity for and importance of supervisory training either before, or at the earliest possible time after individuals are selected to fill supervisory positions.

To meet future staffing needs for supervisory positions, some organizations may identify a number of candidates with supervisory potential and provide appropriate training for them. The provisions of this standard are to be applied in the evaluation and selection of such persons who are to receive training intended to equip them for supervisory responsibilities. The satisfactory completion of supervisory training is to be given appropriate weight in evaluating the overall supervisory or managerial capabilities of candidates for positions covered by this standard.

The provisions of this standard apply to all supervisory positions in grade GS–15 and below.

Specific guidance in the form of a procedure for identifying the requirements of supervisory positions and assessing candidates' potential for such supervisory positions is contained in part VI of this standard. This method, or one which is equivalent in scope and thoroughness, must be used in staffing supervisory positions.

PART II: KINDS OF SUPERVISORY POSITIONS

Differences in supervisory assignments reflect differences in programs, staffing patterns, or other organizational or operational requirements. They result from decisions of higher management as to the way in which supervisory or managerial authority and responsibility are to be delegated and carried out in the various programs and organizations. However, some responsibilities, such as assigning and reviewing work and training and evaluating employees are common to all supervisory assignments.

This standard deals with elements of supervisory or managerial assignments that are typical of various kinds of supervisory positions. The following discussion describes the characteristics common to supervisory assignments at first, second, and higher supervisory levels:

First level supervisors are key links in the management chain. They are the focal points in communicating the policies and objectives of management to nonsupervisory employees. They stimulate, motivate, and instill a sense of participation in employees in achieving management's goals. They communicate the suggestions, ideas, and opinions of employees to higher management. They promote efficient and economical operations and are responsible for the quantity and quality of work produced. They are alert to the interests of outside groups.

---

[1] Because this standard applies to positions in many series, it does not carry an occupational code. It should be filed in part III of this handbook, immediately preceding material coded GS–000.

[2] This standard supersedes the supervisory standard issued in January 1960 and February 1962. Requirements in individual occupational standards that relate to experience in supervision per se are also superseded by this standard.

★This standard has been approved by the Administrator of Veterans' Affairs for use within the Department of Medicine and Surgery of the Veterans' Administration under the provisions of Section 4105, Title 38, U.S.C.★

They insure that their employees provide good service to the public.

First level supervisors:

(1) are responsible for the quality and quantity of work produced by employees under their supervision,
(2) participate in selection and train and evaluate employees,
(3) plan, organize, assign, and review work,
(4) provide guidance and make decisions in technical and administrative matters,
(5) adjust work schedules to meet new requirements or unforeseen situations,
(6) hear and respond to employee or employee-group suggestions, dissatisfactions, or grievances and take appropriate action,
(7) coordinate the work of the unit supervised with that of other units, and
(8) provide higher level supervisors with current information regarding work operations and employee views and opinions.

Supervisors at second and higher levels serve as bridges between subordinate supervisors and higher management. They are the keystones in communicating the concept and spirit of the agency's program goals and objectives both within and beyond the confines of the organizations they manage. They translate management goals and objectives into effective operations. They set the tone for program operations and activities.

Supervisors at second and higher levels typically are involved in most, or all of the first level supervisory functions outlined above. In addition they:

(1) identify new developments or issues which call for new actions and make or participate in decisions regarding the operations directed;
(2) carry out or direct basic planning for prospective changes in functions or programs;
(3) make decisions or recommendations regarding the expenditure of available resources;
(4) define and delegate authority to subordinate supervisors;
(5) establish and monitor production goals or program priorities and controls, and evaluate progress and results;
(6) coordinate the work of the units supervised with associated activities and, where appropriate, with the general public;
(7) represent management in dealing with employee grievances and complaints, or matters relating to employee-management cooperation.

PART III: MINIMUM QUALIFICATION REQUIREMENTS

To be eligible for consideration, candidates for supervisory positions must meet the requirements set forth below. (Many supervisory positions have specific subject-matter knowledge and skill requirements which candidates must also meet; normally, such subject-matter requirements are contained in the qualification standard appropriate to the position to be filled.)

A. SUPERVISORY OR MANAGERIAL ABILITIES

Candidates must have demonstrated in their work experience or training that they possess, or have the potential to develop, the qualities of successful supervision, as listed under the appropriate category below.

The qualities listed for first level supervisory positions and for positions at second and higher supervisory levels are not mutually exclusive. For example, some first level supervisory positions may also require certain of the abilities described for second and higher level supervisors, or the potential to develop these abilities. Decisions as to the appropriate minimum supervisory qualities should be based on actual job requirements.

1. *First level supervisory positions*

a. Ability to motivate, train, and work effectively with subordinates who have a variety of backgrounds and training.

b. Ability to accomplish the quality and quantity of work expected within set limits of cost and time.
c. Ability to plan own work and carry out assignments effectively.
d. Ability to communicate with others effectively both orally and in writing in working out solutions to problems or questions relating to the work.
e. Ability to understand and further management goals as these affect day-to-day work operations.
f. Ability to develop improvements in or design new work methods and procedures.

2. *Supervisory positions at second and higher levels*

In addition to the abilities required for first level supervisory positions, candidates for supervisory positions at second and higher levels must possess, or have the potential to develop, the following:

a. Ability to deal effectively with individuals or groups representing widely divergent backgrounds, interests and points of view.
b. Ability to adjust work operations to meet emergency or changing program or production requirements within available resources and with minimum sacrifice of quantity or quality of work.
c. Ability to establish program objectives or performance goals and to assess progress toward their achievement.
d. Ability to coordinate and integrate the work activities of several organizational segments or several different projects.
e. Ability to analyze organizational and operational problems and develop timely and economical solutions.
f. Ability to represent the activity both within and outside the organization or agency and to gain support for the agency's program goals.

B. PERSONAL ATTRIBUTES

The attributes listed below are important to success in supervisory or managerial positions at all supervisory levels. Accordingly, candidates for all supervisory positions must demonstrate all of the following personal qualities:

1. Objectivity and fairness in judging people on their ability, and situations on the facts and circumstances;
2. Capacity to adjust to change, work pressures, or difficult situations without undue stress;
3. Willingness to consider new ideas or divergent points of view;
4. Capacity to "see the job through."

EXAMPLES OF ASSIGNMENTS WHICH PROVIDE OPPORTUNITY TO DEMONSTRATE NECESSARY ABILITIES AND ATTRIBUTES

The skills, abilities, and personal attributes described above may have been demonstrated in many types of *either* supervisory *or* nonsupervisory work assignments. The following examples show the kinds of nonsupervisory assignments in which candidates may have acquired or demonstrated some of the skills and abilities identified earlier as necessary for supervisory positions.

1. *For first level supervisors*

a. Assignments which involved providing guidance and training to new employees.
b. "Project leader" assignments which involved coordinating and integrating the work of others into a completed work product.
c. Assignments which required the candidate to work closely with others to resolve problems, coordinate activities, or gain acceptance of a product or procedure.
d. Assignment as a "troubleshooter" or source of advice to others regarding the work of the unit or organization.
e. Assignments which involved devising new work methods and procedures or improvements in existing work practices, and getting the cooperation of employees in applying the new methods and practices.

2. *Second and higher level supervisors*

a. Assignments which required the candidate to devise ways to accommodate work operations to new and changing programs or requirements such as studies of work practices and procedures, staffing and budget requirements and similar matters.

b. Assignments which included extensive work with other Federal organizational units, or with State, local, or private activities and which required the candidate to represent and explain program or project goals, or to coordinate and complete projects.

c. Assignments which involved one or more of the following complications: (1) controversial issues, i.e., disagreements on program requirements, policy positions, or operating procedures; (2) strong public interest; or (3) last minute changes requiring extensive coordination.

d. Assignments to positions, task forces, planning, or special study groups which involved substantive work in (1) planning for new programs, (2) reviewing program operations to develop or improve methods, procedures, or controls, or (3) bringing about major changes in program operations and procedures, when such assignments have required exploring the management, organizational, and program issues involved and appraising alternative courses of action.

C. TECHNICAL REQUIREMENTS

In addition to meeting the requirements outlined above, candidates for many supervisory positions must meet the minimum kind, length, and level of experience required for the occupation and grade in which the position is classified. These requirements are contained in the qualification standards in this handbook, or in the qualification standard approved for positions unique to one agency.

Where the nature of the position to be filled warrants it, the technical requirements should be interpreted broadly. For example, if the position involves supervision of more than one kind of work, and no one kind clearly predominates, candidates may meet the minimum technical requirements if their backgrounds clearly show that they possess the knowledges, skills, and abilities needed in the occupation in which the position is classified, or in two or more of the kinds of work supervised.

Further, for many positions supervisory or program management skills are more significant to success than technical expertness in a particular subject-matter field. In such a situation undue emphasis on technical skills could result in the selection of mediocre supervisors. Accordingly, closely related experience should be accepted as qualifying when the total background of the candidate demonstrates strong, affirmative evidence that he:

1. Has the necessary level of supervisory or managerial skills, abilities and attributes to perform the work successfully, and
2. Possesses the necessary level of professional or technical competence for the supervisory position being filled.

A full discussion of this staffing flexibility is contained in the guidelines regarding evaluating specialized experience, "Crediting Experience" in section II, part II of this handbook.

Further, the technical requirements for certain supervisory or managerial positions may be met by the appropriate use of training and executive development agreements. A full discussion of training and executive development agreements is contained in the Federal Personnel Manual chapter on Executive Development, chapter 412.

PART IV: EVALUATING CANDIDATES' POTENTIAL FOR SUPERVISORY POSITIONS

Many of the qualities required for success in supervisory positions are separate and distinct from those which make for high quality performance in nonsupervisory assignments. It is necessary to use several sources to get information essential for evaluating the potential of candidates for supervisory positions. Not every

information source has to be used in evaluating candidates for every supervisory position. The sources selected should be those most appropriate to the requirements of the position to be filled. Among the sources of information available are:

1. Review of the candidate's education, training and experience;
2. Review of information in his personnel records (e.g., commendations, awards, disciplinary actions, etc.);
3. Performance appraisals by his supervisors (past and present);
4. Assessments of potential for supervisory positions;
5. Qualifications investigations;
6. Interviews; and
7. Written tests.

Some of these are more suitable for measuring certain characteristics than they are for measuring others. Normally it is desirable to use several sources and techniques in the evaluation process. Some appraisal techniques and sources are discussed below. These and other appraisal methods and their application are discussed in some detail in the "Guide to the Evaluation of Employees for Promotion," appendix A, part II of this handbook.

As provided in chapter 335 of the Federal Personnel Manual, individual agency promotion plans or announcements should indicate the evaluation techniques to be applied in the ranking process for the supervisory position to be filled.

A. INTERVIEWS

Where possible, individual or group interviews are a highly desirable part of the supervisory selection process. Such interviews can provide considerable information about the candidate's attitudes toward and knowledge of supervisory or managerial processes and problems, and his skill in interpersonal relationships. (Guidance in interview methods and techniques may be found in the C.S.C. publication *Employment Interviewing* (Personnel Methods Series No. 5).

B. WRITTEN TESTS

No written test is required. In those instances in which an agency wishes to use a written test as an additional measure of supervisory ability or potential, it must follow the requirements set forth in FPM chapter 335 on the use of written tests in promotion actions.

C. QUALIFICATIONS INVESTIGATIONS

The use of qualifications investigations may be especially desirable for key supervisory and managerial positions. As part of these investigations a skilled investigator personally interviews persons likely to have firsthand knowledge about the skills, knowledges, abilities and potential of the candidates, as demonstrated through his prior work performance.

These investigations offer the important advantage that they develop information that is not likely to be covered in a reference inquiry or voucher, or to be shown in the usual employment history. In addition, biased views (either favorable or unfavorable to the candidate) are more likely to be balanced out by careful face-to-face questioning and by the investigator's objectivity.

Qualifications investigations should be conducted only on persons in the "highly qualified" group. They are not needed in the case of individuals for whom the selecting officials have available information equivalent to that developed as a result of the qualifications investigation.

PART V: AREA OF CONSIDERATION AND SELECTIVE PLACEMENT

Most supervisory and line program management positions are filled through promotion or reassignment. The importance of these positions warrants that (where appropriate and feasible under merit promotion policy) the search for quality candidates extend beyond the confines of the organizational unit in which the vacancy exists. In those instances where candidates are also sought from outside the Federal service through the competitive examining process, agencies are encouraged to emphasize

selective placement factors such as experience in program or production planning, in requesting the names of qualified individuals. Such requests should include a copy of the current position description and selective criteria derived from a qualifications analysis of the type described in part VI of this standard.

The search for quality candidates should extend over the broadest possible occupational and organizational area consistent with the requirements and timely staffing of the position. The provisions of this standard are not intended to abrogate commitments to employees who are assigned to broad managerial or executive training programs under Civil Service Commission approved training agreements. The provisions of this standard should be applied in selecting persons to enter such training programs. It should also prove useful in assessing the progress and relative success of those being trained.

PART VI: SUGGESTED METHOD FOR ANALYZING JOB REQUIREMENTS AND EVALUATING CANDIDATES

The guidance material that follows provides a method for A. Determining job requirements, and B. assessing candidates' potential for supervisory positions. It also includes a suggested form for recording judgments about the job and the candidate. This material provides a means of screening persons for selection as supervisors. It is one way of deciding how much potential a candidate actually has to do a job. It is designed for use in any kind of personnel action (e.g., merit promotion, lateral reassignment, appointment from register), and can be used in filling any type of supervisory or managerial position at any grade level.

It is not necessary to use this method or the form exactly as presented here. Any part of these materials may be modified and adapted as necessary, provided that the modified method results in an identification of job requirements and an appraisal of candidates which is equivalent in scope and thoroughness to that which would be achieved through the use of the method described below.

A. DETERMINING JOB REQUIREMENTS

The procedure outlined for determining the requirements of supervisory positions is designed to assure that the elements essential to success are given appropriate weight in the evaluation of candidates. These determinations need not be made on an individual position basis. For those supervisory positions which are substantially alike, decisions regarding job requirements can be applied to all like positions. Further, these requirements, once established, need not be revised until the basic characteristics of the position change.

All supervisory positions share some common requirements, such as the ability to get work done through others. However, the particular knowledges, skills, and abilities essential to supervisory success vary in kind and in importance from one supervisory position to another. These variations reflect differences in agency programs and operations, such as differences in (1) the kind of work operations supervised, (2) the place of the position in the management hierarchy, and (3) the goals and objectives of higher management.

1. *The kind of work operations supervised or programs managed*

   Many supervisory positions require specialized professional, technical, administrative or clerical subject-matter knowledge and experience. The depth and variety of these knowledges must be established to determine:
   - —the degree to which one or more specialized knowledges are essential, and
   - —the relative weight which should be given to these knowledge requirements in the overall appraisal of candidates.

2. *The role and level of the position in the managerial hierarchy*

   The role of the position in the managerial hierarchy may be a clue to the relative importance of job requirements. All supervisory positions demand considerable skill in interpersonal relationships in guiding

and controlling day-to-day work operations and dealing with employees supervised. However, for supervisory positions at the higher levels, such demands as the ability to translate management goals and objectives into well coordinated and controlled work operations, or the ability to establish and monitor production or performance priorities may assume additional importance.

Some supervisory positions are clearly identified as stepping stones to key level executive positions. For such positions, candidates should not only fully meet the requirements of the position to be filled but also should possess the potential for further growth and development.

3. *The goals and objectives of higher management, as these relate to the activities to be supervised*

Management's expectations play an important part in determining the supervisor's role in the total work effort of the organization. These expectations are reflected in the amount and kind of authority and responsibility delegated to the position which, in turn, affect the skills and abilities required to do the work successfully. To be sure that these expectations are clearly understood and taken into account in evaluating candidates it is highly desirable (especially for higher level positions) that the management official directly responsible for the activity in which the position exists participate in identifying the qualifications required.

In determining the total requirements for supervisory positions the occupational information contained in both the classification and qualification standards for the specific occupation involved should be considered. They provide an excellent source for added insights into the kinds of experience which should be considered in the supervisory selection process.

Additional guidance material for use by management and personnel officials in developing specific supervisory or managerial qualification requirements may be found in the following publications of the U.S. Civil Service Commission:

—*Selecting Supervisors* (Personnel Methods Series No. 2)

—*A Guide for Executive Selection* (Personnel Methods Series No. 13)

—*Guide to Evaluation of Employees for Promotion* (appendix A to part II of this handbook)

B. ASSESSING CANDIDATES' POTENTIAL FOR SUPERVISORY POSITIONS

The Qualifications Analysis and Assessment of Potential Form which follows is designed to facilitate recording judgments relating to a candidate's potential for success in the supervisory position to be filled. It is not designed to replace a supervisory appraisal of past performance in the candidate's present assignment.

Many of the supervisory or managerial elements known to be important to these positions are listed as "supervisory abilities" on the form. Obviously, every item listed is not significant in every job. The elements in the form that are used for a specific position should be those essential for successful performance in that position. For each ability statement finally decided upon, the degree of importance to the position should be recorded according to the "Instructions for Determining Job Requirements" on the attached form.

It is neither feasible nor necessary to use this form or its equivalent for every job at every level. It may, however, be a particularly valuable source of appraisal information in screening candidates for higher level supervisory or managerial positions.

If this form is used, judgments should be obtained from a sufficient number of individuals to provide a rounded picture of each candidate. Normally this involves selecting a few individuals who know the candidate's work and behavior well, and asking each rater to (1) rate each item according to the instructions on the form, (2) indicate the type of work association

he has had with the candidate, and (3) indicate the length of that association.

The qualification analysis and assessment of potential may be used in a number of ways. *As one example*, candidates could tentatively be placed in one of three groups, e.g., "highly qualified," "fully qualified," or "qualified" on the following basis:

1. The "highly qualified" group could include candidates who have been rated in the first column, which indicates "True of Him" on important or essential items, and in the second column, i.e., "More True than False" on the remainder of such items.
2. The "fully qualified" group could include those who have been rated in columns C and D on important or essential items and in column E on the items marked as desirable.
3. The "qualified" group could include all others.

The form can also be used as a convenient way of summarizing data gathered from all other sources used in the evaluation process. Provided it is current, information regarding a candidate, once obtained for a given supervisory position, may be used in considering that candidate for other supervisory positions having similar characteristics and requirements.

C. SCREENING AND RANKING CANDIDATES

In no instance should the final ranking of candidates be based solely on the method described in the preceding paragraphs for arriving at a qualifications analysis and assessment of potential. This method is designed to provide a tentative ranking. The final grouping or ranking of candidates should take into account and balance off the strengths and weaknesses of candidates as revealed by the other appropriate sources of information, *in relation to the total requirements of the position to be filled.* Decisions on screening, ranking, and selecting candidates should be based on a careful evaluation of all information available about all candidates. In this process particular attention should be directed to education, training,[3] or experience that has provided candidates with a grasp of supervisory or managerial theories, techniques, and practices.

---

[3] If the person selected has not had previous supervisory experience or training, it is highly desirable to provide supervisory training at the earliest possible date. For specific requirements for first level supervisory position, see "training for first level supervisors" in subchapter 3–8b, chapter 335 of the Federal Personnel Manual.

SUPERVISORY POSITIONS IN GENERAL SCHEDULE OCCUPATIONS

QUALIFICATIONS ANALYSIS AND ASSESSMENT OF POTENTIAL FOR SUPERVISORY POSITIONS

Name of Candidate	Position	Grade

1. **INSTRUCTIONS FOR DETERMINING JOB REQUIREMENTS:** Complete column A by entering "D" for an ability which is desirable; "I" for an ability which is important for acceptable performance; or "E" for an ability which is essential for top quality performance.

2. **INSTRUCTIONS FOR RECORDING JUDGMENTS OF CANDIDATE'S POTENTIAL FOR SUPERVISORY POSITIONS:** Mark that column C through F which best expresses from your firsthand knowledge, your judgment of the probability of the candidate's success in the position to be filled. If your knowledge of the candidate's ability or potential was learned from someone else, mark column F, "Don't Know."

Importance of ability (A)	Supervisory abilities and traits (B)	True of him (C)	More true than false (D)	More false than true (E)	Don't know (F)
	1. SUPERVISORY ABILITIES The candidate would:				
	a. Define assignments or projects clearly				
	b. Plan and carry out assignments effectively				
	c. Delegate authority and responsibility and work with and through others effectively				
	d. Instruct, guide, and review the work of others effectively				
	e. Establish and maintain high standards of quality and quantity for the work produced				
	f. Be fair and objective in dealings with and judgments of subordinates				
	g. Understand the theories and techniques of sound personnel management in dealing with employees, both individually and in groups				
	h. Motivate, train, develop, and guide employees of varied backgrounds and skill levels effectively				
	2. ORGANIZATION AND MANAGEMENT ABILITIES The candidate would:				
	a. Devise economical and effective organizational or operational plans and procedures				
	b. Establish program objectives or performance goals and assess progress toward their achievement				
	c. Adjust work activities and schedules to meet emergency conditions or unanticipated requirements				
	d. Understand, interpret, and gain support for management goals and objectives				
	e. Develop improvements in or design new work methods and procedures				
	f. Coordinate and integrate the work of subordinate employees or organizational segments effectively				
	g. Resolve organizational, management, personnel, and technical problems				

SUPERVISORY POSITIONS IN GENERAL SCHEDULE OCCUPATIONS

Importance of ability (A)	Supervisory abilities and traits (B)	True of him (C)	More true than false (D)	More false than true (E)	Don't know (F)
	3. ABILITY TO MAKE RECOMMENDATIONS AND DECISIONS				
	The candidate would:				
	a. Absorb new facts and concepts quickly				
	b. Analyze complex issues or problems thoroughly and quickly				
	c. Keep organizational objectives in mind				
	d. Assess the advantages and disadvantages of alternative plans or courses of action				
	e. Make sound decisions, e.g., based on past experience, present effort, and future outcome				
	f. Accept responsibility				
	4. COMMUNICATIONS ABILITIES				
	The candidate would:				
	a. Communicate effectively with management, and employees, and (where appropriate) employee groups				
	b. Foster an attitude of responsive service to the public				
	c. Be skillful in oral and written communications				
	d. Maintain poise, handle controversial or delicate matters skillfully				
	e. Persuade others to consider and accept his position or point of view				
	f. Communicate effectively with individuals or groups with different backgrounds, levels of educational attainment and personal, program, or organizational aims and interests				
	5. PERSONAL ATTRIBUTES				
	The candidate would:				
	a. Adjust to change, work pressures, or difficult situations without undue stress				
	b. Be able and willing to judge people and situations on the facts				
	c. Consider new ideas or divergent points of view				
	d. Have a positive outlook toward the work and the employing organization				
	e. Have confidence in his own ability				
	f. Have the courage of his convictions				

Your relationship with candidate:	From—	To—	Your present position or title:	
a. Employer or superior				
b. Fellow employee				
c. Other (specify)			Signature	Date

SUBJECT-MATTER POSITIONS REQUIRING COLLATERAL CORRECTIONAL SKILLS*

BACKGROUND AND COVERAGE

This standard covers positions located in correctional institutions or similar facilities confining criminal offenders, that combine a primary requirement for basic subject-matter knowledges, skills, and abilities with collateral responsibility for on-the-job training, supervision, and guidance of inmate workers. This standard provides a reference source of qualification requirements for performing the correctional duties and responsibilities of these positions.

Positions covered by this standard are classified in the series appropriate to the subject-matter duties and responsibilities. A "Grade-Level Guide for Positions Requiring Collateral Correctional Skills" is used for determining the grade levels appropriate to the correctional skills applied. Such grade levels are established by increasing the grade levels appropriate to the subject-matter duties and responsibilities by one, or occasionally more than one, additional grade, based on the difficulty of the additional correctional skills required. The "Guide" should be referred to for detailed information on positions covered by this standard, titling practices, and examples of the duties involved in the correctional aspects of the positions.

BASIC REQUIREMENTS

Applicants must meet the minimum kind, length, and level of experience and training required for the series and grade of the subject-matter duties and responsibilities of the position as defined in the appropriate qualification standard, without regard to augmented grades for required correctional skills.

COLLATERAL REQUIREMENTS

In addition to meeting the basic requirements, applicants for positions with additional grade credit for correctional duties and responsibilities must meet either 1 or 2 below:

1. Applicants must have the additional experience and training required to meet the qualifications for the series and grade in which the position is classified *including augmented grade credit* for collateral correctional skills;

AND

Must have demonstrated (either in their background or in a selection interview) that they possess, or have the potential to develop, the qualities necessary for effective supervision and guidance of inmate workers, such as:

- — ability to motivate, train, and work effectively with people of differing backgrounds and behavioral patterns;
- — ability to communicate with others effectively, both orally and in writing;
- — sympathetic attitude towards the welfare of others;
- — ability to accomplish the quantity and quality of work required;
- — ability to plan and carry out assignments effectively;
- — ability to reason soundly and think out practical solutions to problems;
- — ability to pay attention to detail;
- — poise, self-confidence, and ability to remain calm, particularly under stress.

The following are illustrative of the types of experience that may demonstrate these qualities (this list is not intended to be all inclusive):

(a) Social case work in a welfare agency;
(b) Classroom teaching or instructing;
(c) Responsible rehabilitation work, e.g., in an alcoholic rehabilitation program;
(d) Supervision of planned recreational activities;
(e) Active participation in community action programs;
(f) Employment involving responsibility for interviewing and counseling people;
(g) Management of, or supervising work in, a business or other organization that included personnel management responsibilities in addition to directing work performance;

*This standard should be filed in part III of this handbook, immediately following "Supervisory Positions in General Schedule Occupations."

(h) Sales work other than taking and filling orders as in over-the-counter sales.

OR

2. For each grade level added for collateral correctional skills, applicants must have at least one additional year of experience that demonstrates that they possess, or have the potential to develop, the qualities (such as those described in (1) above) necessary for effective supervision and guidance of inmate workers.

SELECTION INTERVIEW

Prior to appointment, applicants may be required to appear before an interview panel to determine the extent to which the applicants possess the abilities necessary to adequately perform the correctional duties of the position. The interview will also serve to acquaint the applicants with further details of, and the environment surrounding the position.

If it is found that an applicant does not demonstrate the essential qualities and abilities required for successful performance of the correctional duties, he will be declared ineligible for the "correctional" type position. The applicant's name will be returned to its proper order of ranking on the subject-matter register for consideration for appointment to other non-correctional positions.

ADDITIONAL PHYSICAL REQUIREMENTS

The duties of these positions require moderate to arduous physical exertion and involve unusual mental and nervous pressure, so that sound health and physical condition are required for all applicants. In times of emergencies, the correctional duties require unusual physical exertion involving prolonged walking and standing, restraint of prisoners, participation in escape hunts, protracted and irregular hours of duty, etc. Applicants who meet the physical requirements established for the appropriate subject-matter field must also meet the following physical standards:

Applicants must be physically capable of performing efficiently the duties of the position, be free from defects or diseases that may constitute employment hazards to themselves or others, and have no deformities, disfigurements, or abnormalities that tend to be conspicuous.

Vision must test at least 20/100 (Snellen) in the better eye, without glasses, corrected to at least 20/70 (Snellen) in one eye and 20/30 (Snellen) in the other. Defective vision must not be due to active or progressive organic disease. Applicants must be able to read printed material the size of typewritten characters, with comparative ease.

Hearing, each ear, must test at least 15/15 by the whispered voice test. The use of a hearing aid is not permitted.

Hernia (with or without truss), organic heart disease (whether or not compensated), severe varicose veins, serious deformities or disabilities of extremities or back, mental or nervous disease, chronic constitutional disease, marked abnormality of speech, or facial disfigurements will disqualify.

Physical examination generally will be made by a Federal medical officer attached to one of the Federal installations. It may be desirable, when both the selection interview and a physical examination are scheduled for an applicant, that the physical examination precede the selection interview. In those instances where the examining physician definitely has stated on the medical form that the applicant is physically disqualified, the applicant will be declared ineligible for the "correctional" type position. In these cases the interview is omitted and the application returned to the appropriate examining office.

SUBJECT-MATTER POSITIONS INVOLVING EQUAL EMPLOYMENT OPPORTUNITY COLLATERAL ASSIGNMENTS (For inservice placement actions only).*

Coverage

These qualification requirements cover Federal equal employment opportunity (EEO) *collateral duties only.* Collateral equal opportunity duties are assigned to employees who are not new to the organization. Therefore, this standard applies to inservice placement actions only. Employees assigned such collateral duties must, of course, have met the qualification requirements for their primary subject-matter duties and responsibilities which form the basis for the classification of their positions.

DEFINITION

EEO collateral assignments are official EEO duties and responsibilities assigned to an employee *in addition* to the primary duties and responsibilities of the position the employee occupies.

EEO ASSIGNMENTS NOT COVERED BY THIS STANDARD

If an EEO assignment has any of the following characteristics it is not a collateral assignment and this standard may not be used:

(1) The EEO assignment controls the grade of the position. (Guidance for determining if an assignment is grade controlling is in the General Introduction, Background, and Instructions of the Position-Classification Standards, Section II, E, pp. 24–26, "Mixed-Grade Positions Under the Classification Act of 1949".)

(2) The EEO assignment is the primary reason for establishing or continuing the position.

(3) The EEO assignment is intended to be a permanent assignment.

*NOTE: To be filed in Handbook X–118 immediately following the qualification standard for the Equal Opportunity Assistance Series, GS–361.

DOCUMENTING EEO COLLATERAL ASSIGNMENTS

EEO assignments that meet any of the above criteria are *not collateral duties*, and should be treated as continuing regular assignments. The position must be classified according to position classification principles including principles for classifying mixed-grade positions. If the official EEO assignment results in a promotion, agency merit promotion procedures must be followed; time-in-grade requirements must be met; the employee must meet qualification requirements for the grade level and series of the resulting new position; and the nature of the promotion action must be consistent with the intended duration of the assignment. Agencies must comply with adverse action regulations if removal of a permanent EEO assignment from a position results in a reduction in grade level or pay.

Official EEO duties and responsibilities assigned to employees on a collateral basis must be described in the official position description that covers the position the employee occupies. This documentation reflects the formal qualification requirements imposed on the position by the EEO collateral assignment, and permits a determination that there is no grade level effect of the collateral assignment.

Before EEO collateral duties are assigned to any employee the agency should make a reasonable effort to determine if the assignment will affect the grade level of the position, or otherwise constitute a noncollateral assignment.

BASIC QUALIFICATION REQUIREMENTS FOR ALL COLLATERAL EEO ASSIGNMENTS

In addition to meeting the qualification requirements of the series and grade of the basic subject-matter assignments, employees who receive EEO collateral assignments should possess the following basic knowledges and skills:

—An understanding of how agency policies and practices affect the equal employment opportunities of all employees;

—An understanding of the intent and basic goals of the laws and regulations governing Federal equal employment opportunity;

—An understanding of the particular employment problems of underutilized persons and classes in the workforce and labor market, particularly racial and ethnic minorities, women, older workers, and persons who are handicapped, or economically disadvantaged;

—Knowledge and skill sufficient to establish effective working relationships with, and gain the confidence of managers and supervisors, at all levels of the agency, and employees regardless of their occupation, race, sex, ethnic heritage, or socioeconomic background;

—Knowledge and skill sufficient to acquire the following kinds of knowledges related to collateral equal employment opportunity work:

(1) Knowledge of the general structure of the Federal personnel system including classification, merit staffing, recruitment, performance evaluation, career development, labor relations, appeals, grievances, adverse actions, and employee rights and responsibilities;

(2) General knowledge of the missions, organizational structure, and distribution of responsibilities within the agency;

(3) Understanding of the current labor market, e.g., types of jobs available, supply of and demand for certain types of skills, recruiting methods, sources of recruitment, and projected employment needs of the agency.

EEO Counselors: Knowledge and skill sufficient to:

—learn complaint procedures in detail;

—learn basic EEO principles and terms such as "disparate treatment," "issues," and "bases of discrimination";

—communicate orally to explain procedures and regulatory requirements to complainants and management officials who may be angry, confused, or distressed because of the circumstances that caused the complaint, or because of the complaint itself;

—listen carefully and question persons to obtain and organize facts presented by persons who may be angry, confused, or distressed;

—conduct factfinding to locate and obtain necessary documentation materials in connection with informal resolution of a complaint;

—gain an understanding of a particular EEO case, identify the issues, and learn the relevant personnel regulations and principles;

—clarify issues, discuss issues, and resolve misunderstandings if they exist (used during the informal stage of a complaint);

—report facts objectively regardless of personal feelings;

—write simple, clear, and factual narrative statements (for reports).

EEO counselors who have not demonstrated the required knowledges and skills within a reasonable period of time on the job (e.g., six months) should not be retained as EEO counselors.

EEO Program Managers

This includes employees receiving EEO collateral assignments for overall responsibility for managing or advising on an EEO program (e.g., a Federal women's program, Hispanic employment program, etc.).

In addition to the above *basic* requirements for all EEO collateral assignments, EEO program managers must possess the knowledges and skills required for positions in the Equal Employment Opportunity Series, GS–260, at the GS–5 level. However, the minimum requirement of 3 years experience does not apply for collateral assignments.

Additional and higher level knowledges and skills such as those required for equal employment opportunity specialists at grade levels above GS–5 may be required when they are related to the duties and responsibilities of the collateral assignment.

MULTI-GROUP STANDARD FOR ADMINISTRATIVE POSITIONS, GS–5/15

Various Administrative, Program and Management Positions GS–5/15

DESCRIPTION OF WORK

This standard applies to administrative, program, and managerial positions for which no specific qualification standard exists. These positions typically require knowledge of (*a*) the basic processes of administration, (*b*) the principles and standard practices of management, and (*c*) the techniques of organization, direction, coordination, and control. Most of the positions covered by this standard require knowledge of a particular kind of program, such as loans, research, regulation, investigation, or other similar programs. Some positions also require knowledge of a particular function of administration, such as policy review and appraisal, resource planning, operations control, or other similar functions, in relation to the purposes and objectives of the organization served.

This standard is *not* appropriate for:

(1) Professional positions; these positions are covered by qualification standards for occupations such as accountant, engineer, operations research analyst, economist, etc.

(2) Positions in occupations for which qualification standards exist, such as the Personnel Management and Industrial Relations Group, the Management Analysis Series, the Contract and Procurement Series, etc.

(3) Positions with responsibility for providing or obtaining a variety of management services for an organization (covered by the qualification standard for the Administrative Officer Series, GS–341).

EXPERIENCE REQUIREMENTS

Except for the substitution of education provided for below, candidates must have had the amount and kind of experience indicated in the following table and described below:

Grade level	General experience (years)	Specialized experience (years)	Total experience (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11 and above	3	3	6

General experience

General experience is any kind of experience which provided a good basic or general knowledge of the principles of organization, management, and administration. Excess specialized experience may be applied to general experience requirements.

Specialized experience

Specialized experience is operating administrative, program, or managerial experience in a type of work or a combination of functions directly related to the position to be filled, or in comparable work or functions. This experience must have been sufficiently responsible to show clearly the candidate's ability to perform the duties of the position at the grade for which he/she is being considered.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. *For general experience.*—For a maximum of 3 years of general experience, study successfully completed in an accredited college or university may be substituted at the rate of 1 year of education for 9 months of experience.

2. *For specialized experience.*—Graduate education [1] that has equipped the candidates with the knowledges and abilities to perform fully the work of the position being filled may be substituted for specialized experience as described below.

For 1 year of specialized experience.—One full academic year of graduate education in public administration, business administra-

NOTE: This standard should be filed in Part III of Handbook X–118 immediately following Subject-Matter Positions Involving Equal Employment Opportunity Assignments.

[1] Graduate education is accepted at the rate of one full academic year for one year of specialized experience.

tion, or other fields directly related to the position to be filled. (This amount and kind of education meets all the requirements for grade GS–7.)

For 2 years of specialized experience.—Grade GS–9 positions are typically independent working positions rather than trainee positions. Therefore, it is important that candidates be prepared to work with the kind of independence and responsibility expected of employees at that grade. For many such positions graduate education alone will not provide such preparation. However, for some positions, especially those primarily involving research, development, or analytical work, or participation in management training programs, graduate education may be qualifying. The substance of the graduate coursework should be directly related to the job being filled, e.g., a master's degree in public administration or business administration would be appropriate for a management training position. (Two full years of appropriate graduate education or a master's degree in an appropriate field meets all requirements for grade GS–9.)

3. The Superior Academic Achievement Standard in section III of part II, Instructions to Users, of this handbook, is applicable at grade GS–7.

SUPERVISORY POSITIONS

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of this Handbook, in conjunction with criteria contained in this standard.

QUALITY OF EXPERIENCE

Except for candidates who qualify on the basis of substituting education for experience, for eligibility at grades at or below GS–11, candidates must have had at least 6 months of qualifying experience comparable in difficulty and responsibility to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty and responsibility comparable to that of the next lower grade level in the Federal service. For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must show that he/she has the knowledges, skills and abilities needed to perform the duties of the position for which he/she is being considered. The experience must show that the candidate has demonstrated the ability to deal satisfactorily with others as appropriate.

WRITTEN TEST

Applicants for competitive appointment to some positions* at grades GS–5 and GS–7 must pass an appropriate written test. For in-service placement actions, the test is *NOT* required and therefore, may *NOT* be used on a pass-fail basis. In addition, the test may *NOT* be used in evaluating or ranking eligible employees unless the test is approved for this purpose by the Office of Personnel Management.

BASIS OF RATING

Candidates for positions at grades GS–5 and GS–7 for which a written test is applicable will be rated on the basis of their scores on the written test and on an evaluation of the nature and quality of their experience, education and training. Candidates for positions at GS–5 and GS–7 for which a written test is not applicable will be rated on a scale of 100 on the basis of an evaluation of the nature and quality of their experience, education and training. To be creditable this experience, education and training must have provided a general knowledge of the field of work for which the candidate is being considered, and have demonstrated the candidate's ability to enter and progress in this field.

*This applies to positions which meet the criteria in FPM Chapter 332, Appendix F.

Candidates for positions above grade GS–7 will be rated on a scale of 100 on the basis of an evaluation of the nature and quality of their experience, education, and training in relation to the duties of the position involved.

GUIDES FOR EVALUATING EXPERIENCE, EDUCATION, AND TRAINING

In general, in determining the grade level for which a candidate is qualified on the basis of experience, education, and training, the following elements should be considered:

(1) Pertinence of experience and training to the type of position for which he/she is being considered;

(2) Extent and complexity of the work, type of organization, and level of operation with which the candidate is concerned; and

(3) At the lower grade levels, demonstrated interest in administrative work and capacity for growth and development.

In addition, for positions at the higher levels, the evaluation should take into account the extent to which the candidate was responsible for:

(1) Developing and recommending policy, or for interpreting and applying overall policy;

(2) Organizing and carrying out specific programs; and

(3) Evaluating and recommending significant changes in organizational structures and methods of operation.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

QUALIFICATION GUIDE FOR POLICY ANALYSIS IN PROFESSIONAL OCCUPATIONS*

Public policy analysis in the Federal Government as a function of a professional occupation became increasingly evident following World War II as agencies placed emphasis on the identification of organizational goals and objectives and the application of problem-solving techniques to public issues. Policy analysis assignments typically involve identifying and defining an issue, formulating criteria essential to making a decision, developing alternatives accompanied by anticipated consequences, including identification of the uncertainties associated with these alternatives, and assessing implementation feasibility. On some occasions and for a variety of reasons, the policy analyst may complete only one or two of these phases.

Candidates for professional policy analysis positions must meet the minimum kind, length, and level of experience required for the series and grade in which the position is classified. The policy analysis function is frequently carried out by employees working in a number of professional subject areas including but not limited to the following: economics, political science, sociology, education, planning, physical and biological sciences, engineering, and international relations. Policy analysis is typically conducted across, rather than within, disciplinary lines.

Many policy analysts apply analytical methods, developing a study approach to identify and define issues and evaluate the consequences of possible options. Emphasis is placed on objectivity and the collection of data to design recommendations for the issue under consideration. Some policy analysts use quantitative techniques such as economic models, cost-benefit analysis, queuing approaches, linear programming, decision analysis, systems analysis, and simulation models in their discussion and evaluation of public issues. These techniques assist in identifying options and in presenting information in a logical manner, important in the formulation of a policy decision.

The organizational mission, level of issue priority, time constraints, and availability of pertinent information shape the scope of an analytical effort and the range of possible policy alternatives. In addition, the policy analyst must be aware of significant historical circumstances surrounding a policy issue, precedent actions, unresolved questions, current trends, sensitivities of senior managers to proposed options, and long-range effects of possible courses of action.

Examples of the type, nature, and complexity of policy analysis assignments include the following:

Economic Affairs

An analysis of the impact of the freeze on a foreign government's assets in the U.S.; an inquiry concerning regional patterns of coal mining employment and effect of sulfur control requirements on employment; an evaluation of the results of collective bargaining agreements in selected industries; an inquiry into public works programs and their effect in compensating for cyclical unemployment; and indepth discussion of national labor productivity, trends and impacts and relationship to wage and price guidelines.

Environment and Energy

A forecast of U.S. energy supply and demand and implications for U.S. energy policy; assessing the national consequences of removing the restricted use classification for pesticides; a study of the effect of environmental standards on hazardous waste facilities; an analysis of water pollution control standards affecting the efficiency of industries discharging pollutants into navigable waters; a study of alternative systems for minimizing the environmental effects of polluted air emissions; an examination of alternative breeding cycles for nuclear power.

Foreign Affairs and Defense

An analysis of human rights in the People's Republic of China and future prognosis vis-a-vis U.S. foreign policy; a study of Strategic Arms Limitation Treaty III-Air Defense Issues and Force Reduction; the formulation of policy

* This guide should be filed in Part III of this Handbook immediately following Multi-Group Standard for Administrative Positions.

guidance for the employment and deployment of nuclear weapons in support of U.S. allies.

Human Services

Analyzing the modification or elimination of Federal impact economic assistance to local school districts educating significant numbers of children of Federal employees; an examination and evaluation of retirement income proposals for women, issues of equity and adequacy; an examination of the options for financing the social security programs; formulation of a national policy on disability services and benefits; the examination of a health care policy for the older American; an evaluation of welfare policies governing the placement of persons in institutions; an analysis of alternative uses of tobacco and tobacco land; an assessment of the advantages and disadvantages of a national health insurance plan; a study of the effects of Federal Government benefits on elderly participants (e.g., medicare, medicaid, public housing, food stamps); an assessment of the relationship between Federally-funded disability and retirement policies.

Legal Affairs

An inquiry into liability for the discharge of water pollutants into navigable waters; a report on the constitutionality of normalization of relationships with the People's Republic of China by executive agreement rather than by treaty; advice, analysis, and other assistance concerning congressional access to privately, judicially, or executively held information; a study of the jurisdictional consequences of enactment of a criminal code revision proposal; examination of the comparability between the due process protections afforded in congressional and criminal proceedings; a report of the impact of enactment or revision of the copyright law on regulation of cable television; an analysis of various appropriation bill riders which may effect civil rights and its enforcement; a study of the implementing legislation required by the proposed Law of the Sea Treaty.

Evaluation of Candidate Potential To Perform Policy Analysis Work

Success as a policy analyst requires analytical competence, ability to develop alternative proposals and skill in communicating complex, even controversial findings, and anticipated policy consequences. The requisites for individual policy analysis positions differ from one professional position to another as factors such as the perspectives of top policy officials and sensitivity of organizational mission and objectives influence the nature of the responsibilities placed on a policy analyst.

Candidates are required to possess professional or scientific knowledge, skill, and ability and have demonstrated success in their application. This is of particular importance in this work as many policy analysts function at very high organizational levels. Typically there is a direct, even critical, relationship between the possession of professional subject matter expertise and successful performance of analytical assignments. The candidate should be versatile and capable of conducting and/or analyzing the findings of a professional or scientific inquiry and presenting pertinent information in a logical manner facilitating the formulation of a decision.

Generally, candidate evaluation is based primarily on relevant academic achievement and/or relevant experience. When evaluating a candidate's academic performance, a determination should be made concerning the extent that completed course work has contributed to a knowledge of policy analysis, methods of policy analysis, microeconomic and macroeconomic theories, social sciences, statistics, operations research, organizational theory, public finance, and logic.

The position classification guide for professional employees performing policy analysis is an appropriate source for evaluating candidate experience as it discusses the knowledge, skills, and abilities required for performance at different levels of responsibility. In addition, consideration should be given for active involvement in professional policy analysis organizations, presentation of technical papers,

and participation in seminars. Technical publications should be weighed for their contributions to advancing knowledge of policy analysis rather than on quantity alone.

Qualifications Analysis and Assessment of Potential for Policy Analysis Positions

The Qualification Analysis and Assessment of Potential for Policy Analysis Positions has been prepared to facilitate the evaluation of candidates for professional policy analysis positions. Use of the appraisal criteria can be of assistance in assessing the degree of possession of requisite knowledge, skills, and abilities by each candidate and whether the candidate's education and/or experience meets the position's policy analysis requirements.

Other sources of information which may be useful in evaluating candidates include the following:

1. —work products e.g., reports, studies, articles, letters, and memorandums;
2. —reference inquiries;
3. —supervisory appraisals;
4. —personal interviews;
5. —results of assessment center activities.

Application of Form

The use of this form is optional and may be of particular value in the evaluation of candidates for promotion, reassignment, or transfer to policy analyst positions. It can also be applied in the evaluation of candidates referred through competitive examining sources. It is not designed, however, to be the sole means of assessing candidates.

Decisions on screening, ranking and selection should be based on careful assessment of all pertinent information available on the candidates including appropriate experience, education, performance evaluations, professional development, and relevant achievements.

Every item listed may not be significant or germane for every policy analysis position. Additional factors related to a particular position may be included as appropriate.

OFFICE OF PERSONNEL MANAGEMENT

QUALIFICATIONS ANALYSIS AND ASSESSMENT OF POTENTIAL FOR POLICY ANALYSIS POSITIONS

Name of Candidate Position Grade

I. INSTRUCTIONS FOR DETERMINING JOB REQUIREMENTS: Use columns 0–3 to determine relevance of knowledge, skill and abilities to position to be filled. Mark column 0 if not applicable; mark 1 if knowledge, skill, or ability (KSA) is desirable; mark 2 if KSA is important for acceptable performance, mark 3 if KSA is essential for superior performance.

II. INSTRUCTIONS FOR RECORDING JUDGMENTS OF CANDIDATE'S POTENTIAL: Mark that column A through D which best expresses from your firsthand knowledge, your judgment of the candidate's probability for success in the position to be filled.

Knowledge, Skills, and Abilities to be Appraised					Level of Possession of Knowledge, Skill, Ability			
0	1	2	3	Superior (extensive education and/or experience which required application of knowledge, skill, & ability, KSA) A	Acceptable (clear possession of KSA allowing satisfactory performance) B	Unacceptable (insufficient evidence of possession of KSA) C	Cannot Rate (impossible to judge possession of KSA) D	Evidence of Level of Possession E
1. Knowledge of and ability to apply qualitative techniques to policy issues: a. perform extensive inquiry into a wide variety of significant issues, problems or proposals, determine data sources and relevance of findings and synthesize information								
b. evaluate tentative study findings, objectively describe advantages and disadvantages of alternatives and draw logical conclusions								
c. identify omissions, questionable assumptions or inadequate data in the analytical work of other professionals or consultants								

QUALIFICATIONS ANALYSIS AND ASSESSMENT OF POTENTIAL FOR POLICY ANALYSIS POSITIONS

Knowledge, Skills, and Abilities to be Appraised	Level of Possession of Knowledge, Skill, Ability			
0 1 2 3 Superior (extensive education and/or experience which required application of knowledge, skill, & ability, KSA) A	Acceptable (clear possession of KSA allowing satisfactory performance) B	Unacceptable (insufficient evidence of possession of KSA) C	Cannot Rate (impossible to judge possession of KSA) D	Evidence of Level of Possession E
2. Knowledge of and ability to apply quantitative methods to policy issues:				
a. cost benefit analysis				
b. design of computer simulation models				
c. statistical analysis including survey methods, regression analysis				
3. Knowledge of and skill in written communication techniques to systematically identify data sources, organize policy discussions and to present findings in logical sequence with supporting as well as adverse criteria for specific issues				
4. Knowledge of and skill in written communication techniques and ability to perform assignments complicated by short deadlines and limited information				
5. Knowledge of and skill in effective oral communication techniques to explain, justify, or describe a variety of public issues requiring a logical presentation of appropriate facts and information or analysis				

OFFICE OF PERSONNEL MANAGEMENT

QUALIFICATIONS ANALYSIS AND ASSESSMENT OF POTENTIAL FOR POLICY ANALYSIS POSITIONS

Knowledge, Skills, and Abilities to be Appraised	Level of Possession of Knowledge, Skill, Ability				
0 1 2 3 Superior (extensive education and/or experience which required application of knowledge, skill, & ability, KSA) **A**	Acceptable (clear possession of KSA allowing satisfactory performance) **B**	Unacceptable (insufficient evidence of possession of KSA) **C**	Cannot Rate (impossible to judge possession of KSA) **D**	Evidence of Level of Possession **E**
6. Knowledge of economic theories including: a. microeconomics and effect of proposed policies on				
—production costs and prices				
—wages				
—resource allocation				
—consumer behavior				
and/or				
b. macroeconomics and effect of proposed policies on —income and employment				
—investment				
—interest rates				
—price level				
7. Other; Knowledge, Skill, and Abilities To Satisfactorily Perform Job Requirements				

Your relationship with candidate:
1. employer or superior _____
b. fellow employee _____
c. other (specify) _____

Your present position or title: _____

Signature Date

(TS 187)
March 1981

CORRECTIONAL OFFICER[1] SERIES

Correctional Officer GS–6/13

DESCRIPTION OF WORK

Correctional Officers supervise and perform work concerned with the correctional treatment, supervision, and custody of criminal offenders in correctional institutions or community-based treatment or rehabilitation centers. They have primary responsibility for guiding inmate conduct, supervising work details, carrying out plans for the correctional treatment and modification of attitudes of inmates, instructing and counseling inmates on institutional and personal problems, and generally ensuring the custody, safety, and well-being of inmates. On occasion, Correctional Officers are required to carry firearms.

Supervisory Correctional Officers have either (*a*) responsibility for planning, directing, coordinating and implementing programs to accomplish the work described above, and for supervising a force of Correctional Officers on all shifts, or (*b*) responsibility for the immediate supervision of correctional officers assigned to a shift or to a physical area or activity of an institution.

EXPERIENCE AND TRAINING

Except for the substitution of education provided below, applicants must have had the following kinds and length of experience:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–6	3½	None	3½
GS–7	3½	1	4½
GS–8	3½	2	5½
GS–9/13	3½	3	6½

Note: When positions are to be filled at grades below the normal GS–6 level, the qualification requirements should be determined by a downward extension of the criteria in this standard, e.g., 3 years of general experience is qualifying for grade GS–5.

General experience

Experience, paid or voluntary, full or part time, that demonstrates the applicant's aptitude for acquiring the skills and knowledges needed for correctional work, and in addition, demonstrates the possession of personal attributes important to the effectiveness of correctional officers, such as:

—ability to meet and deal with people of differing backgrounds and behavioral patterns;
—ability to be persuasive in selling or influencing ideas;
—ability to lead, supervise, and instruct;
—sympathetic attitude towards the welfare of others;
—capacity to adapt to new ideas and changing conditions;
—ability to reason soundly and to think out practical solutions to problems;
—ability to pay attention to detail;
—ability to make decisions and act quickly, particularly under stress;
—poise and self-confidence, and ability to remain calm during emergency situations.

The following types of experience are illustrative of acceptable general experience, providing they meet the above criteria (this list is not intended to be all inclusive).

(1) Social case work in a welfare agency;
(2) Classroom teaching or instructing;
(3) Responsible rehabilitation work, e.g., in an alcoholic rehabilitation program;
(4) Supervision of planned recreational activities;
(5) Active participation in community action programs;
(6) Employment with a counseling service in interviewing and counseling people;
(7) Management of, or supervising work in, a business or other organization that included personnel management responsi-

[1] For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.
[2] This standard supersedes the standard for this series that was issued in September 1963.

bilities in addition to directing work performance;

(8) Sales work (other than taking and filling orders as in over-the-counter sales);

(9) Active participation, as an officer or member, in extracurricular activities in college, such as student government, service organizations, college magazines or newspapers, fraternal organizations, etc.

Specialized experience

This is experience in the correctional custody and supervision, in accordance with modern penological concepts, of inmates of a penal or correctional institution or community based correctional treatment facility. This experience must satisfy all of the following requirements:

(a) must have included satisfactory completion of a federally operated inservice training course for correctional officers, or completion of a comparable training course covering modern correctional concepts and techniques;

(b) must have demonstrated the ability to supervise and control inmates in groups of 20 or more, and to make sound decisions in critical circumstances;

(c) must have shown the capacity to relate successfully to inmates with respect to matters such as close and continuous counseling, singly and in groups; and

(d) must have shown the ability to work independently and to assume responsibility for the correctional custody and supervision of inmate activities; to direct, observe, and correct inmate behavior; and to take precautionary measures to ensure control in situations relatively critical to the security of the institution.

In addition:

For grade GS–8, the applicant must have demonstrated the ability and knowledge necessary to perform difficult post assignments that require the judgment, maturity, and knowledge of inmate behavior developed through experience gained in performing a variety of correctional assignments; to use, and to make reports and recommendations based on the use of techniques such as informal counseling, guidance, interview, and observation, and to deal adequately with special problems of correctional custody made difficult by unusual conditions of supervision and control.

For grade GS–9 nonsupervisory positions, the applicant must have demonstrated the knowledge of, and ability to apply technical treatment and/or counseling skills and techniques acquired through formal classroom and supervised practical training. These skills may have been utilized in a variety of assignments, typically as part of structured treatment or rehabilitation programs under the guidance of professionals in the behavioral sciences or social work.

QUALITY OF EXPERIENCE

For positions at any grade the amount of experience will not in itself be accepted as proof of qualification. The applicant's record of experience and training must show that he has the ability to perform the duties of the position.

In addition:

For grade GS–6, applicant must have had at least 6 months of general experience comparable in difficulty and responsibility to that of the next lower grade, or 1 year comparable to the second lower grade in the Federal service.

For grades GS–7 through GS–11, at least 1 year of the specialized experience must have been comparable in difficulty and responsibility to the next lower grade, or 2 years comparable to the second lower grade in the Federal service.

For grades GS–12 and above, at least 1 year of the specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service.

SUBSTITUTION OF EDUCATION AND TRAINING FOR EXPERIENCE

To be acceptable as substitution for general or specialized experience, the level and quality of the education and/or training (or of the combined experience and education and/or train-

ing) must have equipped the candidate to perform correctional duties at the grade level of the position to be filled.

For general experience

(1) Two years of study successfully completed in a resident school above high school level may be substituted for two years of general experience.

(2) Successful completion of a full 4-year course of college study may be substituted for three years of general experience.

(3) One full semester of graduate study successfully completed in an accredited college or university, except as noted below, may be substituted for six months of general experience, and is fully qualifying for grade GS–6.

At any grade, post-high school education may be partially substituted for required experience at the rates of substitution indicated above.

For specialized experience

One full semester of graduate study in correctional administration, criminology, penology, sociology, or social work successfully completed in an accredited college or university may be substituted for six months of specialized experience, up to a total of 18 months.

Credit for appropriate education and training other than that outlined above (such as manpower development programs, "New Careers" programs, rehabilitated offender programs, or inservice training programs) will be granted depending on the nature, extent, and applicability of the training in relation to the position to be filled.

SELECTIVE PLACEMENT

All correctional officer positions share the requirement for knowledge and skill in correctional treatment, supervision, and custody of criminal offenders. However, additional knowledges and abilities may be required for some positions because of the concentration of inmates in distinct age, ethnic, cultural, or other specific groups in certain institutions. It is desirable for these institutions to have sufficient numbers of correctional officers who can successfully relate to the members of these groups. Selective placement consideration may be given to applicants having a thorough knowledge and understanding of the customs, language patterns, and problems of specific groups of inmates.

BASIS OF RATING

Applicants for all grades will be rated on the basis of an evaluation and appraisal of experience, education, and training.

EMPLOYMENT INTERVIEW

The personal qualities and characteristics of the applicant are the most critical of all the requirements for positions of Correctional Officer. He must be willing to perform arduous and prolonged duties on any of the three shifts. He must possess certain personal qualities in order to effectively relate to inmates in a correctional setting. These qualities include: Empathy, objectivity, perceptiveness, resourcefulness, adaptability and flexibility, stability and maturity.

Before appointment, candidates may be required to appear before a panel of specialists in correctional administration for an employment interview to determine the extent to which the candidate possesses these and other qualities necessary to adequately perform the duties of Correctional Officer. The interview will also serve to acquaint the applicant with further details of, and the environment surrounding, the position. A determination by the panel that a person who is otherwise qualified does not possess such personal characteristics to the required degree may result in removal of his application from further consideration. Notice will be given, in advance, of the date and place of the interview.

EVALUATION FOR INSERVICE PLACEMENT

Guidelines for appraising employee's qualifications and promotion potential are discussed in *FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement.*

In evaluating each applicant's experience and training, attention should be given to the following factors (as appropriate):

—Knowledge of basic correctional theory and techniques;
—Ability to follow instructions;
—Knowledge of security and control procedures and techniques;
—Ability to supervise and instruct inmates;
—Ability to exercise mature judgment in pressure or crisis situations;
—Ability to communicate effectively with inmates, win their respect and confidence, and establish and maintain continuing constructive relationships with them;
—Ability to combine objectivity and empathy in counseling inmates on personal and institutional problems;
—Knowledge of technical counseling and treatment skills and techniques, or both;
—Ability to write reports and communicate orally with supervisors and other institutional staff.

For inservice placement in Supervisory Correctional Officer positions at grade GS–11, one year of experience as a Supervisory Correctional Officer, GS–9, will satisfy the Quality of Experience requirements described above, provided a review of the candidate's total experience and performance demonstrates that he possesses:

1. Definite potential for successful performance of the work; and
2. The necessary knowledges, skills, and abilities, such as (a) a thorough familiarity with the overall operation of a correctional institution and its program, (b) an extensive knowledge of correctional and security techniques and practices, and (c) the ability and judgment required to make decisions that may influence the effectiveness of the correctional programs.

In addition (as indicated above) the Qualification Standard for Supervisory Positions in General Schedule Occupations in part III of this handbook should be used in conjunction with this standard.

PHYSICAL REQUIREMENTS

The duties of these positions involve unusual mental and nervous pressure and require arduous physical exertion involving prolonged walking and standing, restraining of prisoners in emergencies, and participating in escape hunts. Applicants must be physically capable of performing efficiently the duties of the position, be free from such defects or disease as may constitute employment hazards to themselves or others, and have no deformities, disfigurements, or abnormalities which tend to be conspicuous. Persons having remediable defects or curable diseases, and who are otherwise qualified, will be admitted to the examination but must submit proof, during the time the list of eligible competitors exists, that the defects or diseases have been remedied or cured before they may be considered for appointment. The duties of a correctional officer are arduous, and sound health and physical condition are required.

No height or weight limits are specified, but weight must be in proportion to height. Male applicants under 66 inches and female applicants under 63 inches in height will be especially evaluated for stamina and vigor.

Vision: Uncorrected vision must be no less than 20/100 (Snellen) in each eye, capable of full correction to 20/30(Snellen) in each eye, provided that defective vision is not due to active or progressive organic disease.

Hearing: Hearing in each ear must be normal, that is , 15/15 in each ear by the whispered voice test. Hearing aids are not acceptable.

General: Hernia (with or without truss); organic heart disease (whether or not com-

pensated); severe varicose veins; serious deformities, or disabilities of extremities (including weak feet); chronic constitutional disease; marked abnormality of speech; facial disfigurement; or other serious physical defect or disease will disqualify for appointment. Disease of the nervous system or history or presence of mental disease or emotional instability may disqualify an applicant for appointment. Before entrance on duty, appointees will be given, without expense to them, a physical examination by a Federal medical officer, and will be rejected if they do not meet the standards specified above. Persons who are offered appointment must pay their own expenses in reporting for duty. Any person reporting for duty at the place of assignment and found ineligible because of physical defects cannot be appointed, and no part of his expense for reporting and returning home can be borne by the Government.

SAFETY AND OCCUPATIONAL HEALTH MANAGEMENT SERIES

Safety and Occupational Health Specialist GS–5/12
Safety and Occupational Health Manager GS–11/15

DESCRIPTION OF WORK

Safety and occupational health specialists primarily identify environmental hazards, determine causes for actual or potential failures in human, equipment or machinery performance and develop techniques and measures to eliminate or control resultant unsafe acts or conditions. The work requires the application of safety and occupational health laws, standards, and regulations and the promotion of educational activities to achieve an awareness of risks and corresponding mishap prevention measures and protective devices.

Safety and occupational health managers develop, direct, and administer a comprehensive safety and occupational health program requiring program planning, organization, coordination, evaluation, hazard analysis and control, development of education activities, and implementation of a mishap reporting system.

Safety and occupational health managers recognize and solve complex problems, coordinate efforts with personnel representing a wide range of occupations and communicate program goals and objectives (orally and in writing) to line and staff managers. They motivate and stimulate management officials to adopt sound courses of action to eliminate or minimize the risk of injury to individuals and damage to property. Safety and occupational health managers influence supervisors and employees to achieve a safe and efficient work environment.

BASIC REQUIREMENTS FOR ALL POSITIONS

A. Candidates must have three years of progressively responsible experience that demonstrated a sound, general knowledge of management functions, practices and procedures and the administrative processes for accomplishing the work of an organization. Work experience must provide evidence that the candidate possesses the following abilities:

1. Ability to search for pertinent facts and data, analyze and evaluate information and form accurate conclusions.
2. Ability to learn safety and occupational health laws, principles, standards, inspection and abatement techniques through classroom instruction and on-the-job trainee assignments.
3. Ability to compose clear, accurate reports or nonroutine correspondence.
4. Ability to orally communicate administrative requirements in an effective manner.

Some examples of work which *may* qualify the candidate for performances of GS–5 level duties follow:

—safety technician work;
—management support work such as a management assistant, personnel assistant, training technician and legal aide;
—engineering and physical science support work such as engineering technician, electronics technician and physical science aide;
—health support work such as environmental health technician; and
—firefighter experience where -work in cludes fire inspection duties.

This list is not all inclusive or exhaustive.

OR

B. Completion of a full four-year course of undergraduate study in an accredited college or university is fully qualifying for the GS–5 level. Study, successfully completed in an accredited college or university may be substituted at the rate of 1 year of education for 9 months of general experience up to a maximum of 3 years of general experience.

The basic requirements applicable to all grades are fully qualifying for grade GS–5.

Typically, the GS–5 safety and occupational health specialist is a trainee and participates in formal training courses and completes on-the-job assignments which provide the basis for acquiring the knowledge, skills, and abilities needed to perform at the GS–7 level of complexity.

ADDITIONAL EXPERIENCE, EDUCATION AND ALTERNATE REQUIREMENTS

Candidates for grades GS–7 and above must have had either technical safety and occupational health training or graduate education in addition to meeting the basic requirements.

Candidates applying for positions at the GS–7 level or above based on experience must demonstrate possession of the following knowledge in addition to meeting the basic requirements:

—Knowledge of safety and occupational health laws, principles, standards, and inspection methods required to identify common hazards; and

—Knowledge of analytical techniques required to determine the factors, characteristics, and effects of frequently encountered and generally recognized, unsafe actions and physical conditions which may cause personnel injuries or damage to property.

Candidates must demonstrate possession of each of the following *to the degree required to perform the duties of the position to be filled:*

—Ability to establish, maintain, and improve interpersonal relationships with individuals and groups having diverse backgrounds and interests;

—Knowledge of safety and occupational health standards and sound safety procedures and practices applicable to construction processes, equipment and machinery operations, and hazardous construction materials sufficient to identify unsafe acts and working conditions;

—Knowledge of safety and occupational health standards and sound procedures and practices applicable to industrial machinery and power equipment such as forging machines, power presses, and drilling machines sufficient to identify hazardous operations and working conditions;

—Knowledge of safety and occupational health standards and sound procedures and practices applicable to a wide variety of industrial work processes including but not limited to abrasive blasting, dry grinding, polishing and buffing, exhaust ventilation, spray finishing, welding, cutting and brazing sufficient to identify and detect hazardous work practices;

—Knowledge of safety and occupational health standards and sound procedures and practices applicable to hazardous materials including compressed gases, explosives and blasting agents, flammable and combustible liquids, ionizing radiation, and liquified petroleum gases which provides the basis for identifying unsafe working conditions;

—Knowledge of safety and occupational health standards and sound procedures and practices applicable to materials handling equipment including but not limited to cranes, derricks, conveyors, powered hand and industrial trucks, sufficient to determine the existence of hazardous operations or conditions;

—Knowledge of fire protection including automatic sprinklers, fixed systems, carbon dioxide and dry chemical extinguishing systems and fire alarm signaling devices sufficient to determine if applicable fire, safety, and occupational health standards have been met;

—Knowledge of personnel protection practices, equipment and apparel sufficient to provide instruction and information to supervisors and employees;

—Skill in investigating mishaps and determining basic facts, conditions, and circumstances of occurrences; and

—Skill in oral and written communications.

Amount of Specialized Experience Required for Grades GS–7 and Above:

Grade:	Years
GS–7	1
GS–9	2
GS–11/15	3

EXAMPLES OF QUALIFYING SPECIALIZED EXPERIENCE

In addition to appropriate experience as a Federal safety engineer, safety and occupational health specialist or technician, qualifying experience for positions at the GS–7 level and above *may* be gained by performing specialized work in a closely related professional occupational such as industrial hygiene, industrial engineering, health physics, fire prevention engineering and other engineering and scientific fields.

Except for those candidates who qualify solely on the basis of education, candidates for positions at grades GS–11 and below must have at least 6 months of the required experience at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade in the Federal Service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal Service.

SUBSTITUTION OF EDUCATION FOR SPECIALIZED EXPERIENCE

(a) For grade GS–7:

Completion of 1 year of graduate study which equipped the candidate with the knowledge and ability to perform fully the work of the position for which he/she is being considered will satisfy the requirements for GS–7 positions.

(b) For grades GS–9 and GS–11:

For some positions at the GS–9 level and above, the knowledge and abilities required are not readily attainable through graduate study alone. However, graduate study may be accepted as meeting the specialized experience requirements for positions at the GS–9 and GS–11 levels when the following conditions are met:

(*1*) The position to be filled involves specialized analysis, planning or development work which requires a broad and intensive knowledge of safety systems and techniques; and

(*2*) The graduate level course work is directly relevant to safety and occupational health work assigned the position. In situations which meet these conditions, graduate study is qualifying on the following basis:

(*a*) GS–9: Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education, which is in safety and occupational health management or safety engineering, industrial engineering or directly related fields such as Industrial Hygiene, Fire Prevention Engineering or Industrial Psychology. (This amount and kind of education meets all the requirements for grade GS–9.)

(*b*) GS–11: Completion of all requirements for a doctoral degree (Ph. D. or equivalent) or 3 full academic years of graduate education, which is in the fields listed in (a) above. (This amount and kind of education meets all the requirements for GS–11.)

SUPERIOR ACADEMIC ACHIEVEMENT

Provisions of the superior academic achievement in section III of Part II, Instructions to Users, of the X–118 Handbook are applicable at Grade GS–7.

SUPERVISORY SAFETY AND OCCUPATIONAL HEALTH SPECIALIST POSITION

For supervisory safety and occupational health specialist positions, use the qualification standard "Supervisory Positions in General

Schedule Occupations" in Part III of Handbook X–118.

SELECTIVE PLACEMENT

Safety and occupational health work in the Federal service involves the application of established principles, standards, and techniques in a broad variety of organizational settings. Knowledge of safety and occupational health principles, methods, and techniques is a common occupational requirement. Certain positions, however, may require specialized knowledge of subject matter fields such as health research, weapons development, hospital operations, or traffic safety. Where a specialized knowledge is essential in filling a position selective placement of candidates is encouraged.

Selective placement factors should represent minimum acceptable qualifications for the position. The appropriateness of these factors should be substantiated in the official position description or other official agency information. Selective placement procedures should not be applied if it is evident that other eligibles could perform satisfactorily after a customary training period.

GUIDE FOR EVALUATION OF CANDIDATES

The following criteria should be considered in evaluating the specialized experience for safety and occupational health specialist and safety and occupational health manager positions.

SAFETY AND OCCUPATIONAL HEALTH SPECIALIST POSITION

While most appointments at the GS–5 and GS–7 levels are based on potential ability to perform safety and occupational health specialist responsibilities, selection at the higher grade levels are largely directly related to the evaluations of candidate performance and individual candidate achievements.

To the degree required by the position to be filled, *careful consideration* must be given the following factors:

1. The extent of knowledge of safety and occupational health laws, principles, practices and standards, and underlying concepts.
2. The depth of knowledge of specialized fields of safety and occupational health including prevalent environmental conditions, hazards, and types of mishaps (e.g., explosive safety).
3. The knowledge of analytical techniques and evidence demonstrating skill in pinpointing mishap causes and identifying modes of human and equipment failure.
4. Demonstrated skill in planning surveys or inspections of work operations and premises and in devising a wide variety of safety and occupational health measures.
5. Effectiveness of oral and writing skills in communicating study or survey findings and in gaining the support of management and employee representatives in the implementation of necessary safety measures.

Consideration should also be given to experience such as:

1. Experience as an instructor of courses in related management and technical fields.
2. Experience which has contributed significantly to the candidate's knowledge of specialized safety and occupational health subjects, work processes, psychology, and physiology.
3. Experience in other management support functions such as management analysis or budget analysis which has contributed significantly to a candidate's understanding of the total management process and work environment.

SAFETY AND OCCUPATIONAL HEALTH MANAGER POSITIONS

The evaluation of safety and occupational health manager experience should take into account the breadth of the safety and occupational

health program for which the candidate has been responsible and the degree to which the several functional program areas were developed. In general, the greater the breadth of the program and the higher the development of each function, the more credit should be given in the evaluation process.

If a candidate has not had experience as a safety and occupational health manager or supervisory safety and occupational health specialist, particular attention should be directed to the depth and variety of his/her experience in safety. Other things being equal, more recognition should be given to a candidate with experience in the basic areas (i.e., safety and occupational health program management; hazard control; safety education and promotion; mishap analysis and reporting) than one with experience in only one or two areas. (See discussion of these basic areas in the position classification standard for the Safety and Occupational Health Management Series, GS–018).

In addition, non-safety and occupational health experience which has contributed significantly to the candidate's knowledge of management functions including the planning, organizing, coordinating, directing, and evaluating of a recognized administrative or management program should be considered in assessing breadth of management experience and knowledge of the techniques of management.

Achievements

To assure maximum quality and accuracy in the evaluation process, the candidate's self-development activities and accomplishments also should be considered. In the evaluation of the competence of candidates, appropriate credit should be given to those candidates certified by the Board of Certified Safety Professionals of the Americas and the Certified Hazard Control Manager Board.

Candidates also may be given appropriate credit for active membership in safety and occupational health organizations, the publication of technical safety articles, participation in safety seminars and workshops, patents and awards. Technical publications should be evaluated for their contribution to advancing safety and occupational health knowledge, rather than on quantity alone.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment.

The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

SAFETY TECHNICIAN SERIES

Safety Technician GS-4/11

DESCRIPTION OF WORK

Safety technicians are assigned a variety of support tasks designed to facilitate the identification, prevention, and elimination of safety hazards in the work environment.

Safety technicians perform duties of an operational nature which are typically fixed within prescribed limits. Safety technicians inspect the physical plant and equipment and observe work practices to detect unsafe conditions. They make brief reports of observations, violations and specify correction action taken. Their findings result from observing and checking on violations of established codes, requirements and safe practices. They perform services, such as investigating accidents or issuing and maintaining personal protective equipment. They provide supervisors with specific information concerning accident hazards in the work setting. They conduct safety meetings with workers to give or reinforce training in such aspects as safe work methods, driver education, and accident prevention techniques.

EXPERIENCE, EDUCATION, AND TRAINING REQUIREMENTS

Experience requirements

Except for the substitutions provided for below, candidates must have had qualifying experience in the amounts and type shown in the following table:

Grade levels	General experience (years)	Specialized experience (years)	Total experience (years)
GS-4	1½	½	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5
GS-8 and above	2	4	6

General experience.—This is any type of work which indicates evidence of the applicant's aptitude for acquiring the particular knowledges and skills needed to perform safety technician work, e.g., trades, machine operating, military, inspection or other work that involved observation of appropriate safety rules.

Specialized experience.—This is experience which involved: (1) identifying, preventing, or eliminating safety hazards in work methods or environmental conditions; or (2) safety training or promotion. Such experience must have provided the applicant with a practical knowledge of occupational and environmental safety hazards, survey techniques, and control and preventive methods.

Examples of occupations which may provide specialized experience are: biological technician, medical technician, engineering technician, fire prevention inspector, and environmental health worker in local or State government or in industry. Journeyman experience in a trade or craft may be credited as specialized experience when the work is closely associated with and provides the required knowledge of occupational and environmental safety techniques, methods, and skills.

SUPERVISORY POSITIONS

For supervisory positions, also use the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

QUALITY AND LEVEL OF EXPERIENCE

For positions at any grade the amount of experience will not in itself be accepted as proof of qualification. The applicant's record of experience and training must show that he has the ability to perform the duties of the position.

In addition:

For grade GS-4, the 6 months of specialized experience must have been comparable in difficulty and responsibility to the GS-3 level.

For grade GS-5, at least 1 year of the required experience must have been comparable in difficulty and responsibility to the GS-4 level. At least 6 months of this experience must have been specialized experience at the GS-4 level.

(TS 139)
June 1971
Reprinted without change April 1975
(TS 153)

For Grades GS-6 through GS-11, at least 1 year of the specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

—Successful completion of 2 years of study in a school above the high school level which included at least 12 semester hours in any combination of courses in safety, fire prevention, industrial hygiene, psychology, engineering, or agricultural, biological, or physical sciences meets in full the experience requirements at the GS-4 level.

→—Successful completion of a full 4-year curriculum leading to a bachelor's or higher degree with a course of study in safety, fire prevention, industrial hygiene, or other closely related field may be substituted for 3 years of experience. Such substitution meets in full the experience at the GS-5 level, including the 1 year of required specialized experience.←

—Successfully completed appropriate post-high school education may be substituted for general experience on a year-for-year basis.

Appropriate education and training other than that outlined above, such as military training programs or manpower development programs, will be given credit on a month-for-month basis.

BASIS OF RATING

No written test is required. Applicants for all positions will be rated on a scale of 100. The basis of rating will be an evaluation of experience, education, and training. The candidate must present evidence of ability to perform the duties typical of the grade level for which he is being considered. The information for evaluating experience and training will be taken from the application form and any additional information obtained through confidential inquiries to supervisors, teachers, and other references.

GUIDE FOR EVALUATION OF CANDIDATES

In evaluating the experience and training background, consideration should be given to the degree and extent to which the evidence shows that the candidate has acquired the skills and abilities to perform the work of the position to be filled.

In ranking individuals, information about the demands of the job in terms of specific subject-matter fields should be considered. For example, an applicant who shows successful experience in inspecting and monitoring safety practices in ammunition manufacturing plants might not possess the same degree or quality of required depth or breadth of knowledges of highly specialized safety standards and skills for inspecting specialized work processes and explaining safety methods and techniques in construction or vice versa. Therefore, when the position requires knowledges and skills of a particular occupational work process and safety methods, successful experience gained in that area should be ranked as highest quality experience. Similarly, academic study in a science or technology directly related to the position to be filled should be ranked as highest quality education.

Intensive training in a manpower development program, New Careers Program, or in-service training designed specifically to train candidates for safety work should be credited as especially appropriate training.

SELECTIVE PLACEMENT

All safety technician jobs require a practical knowledge of basic accident prevention principles, methods, and techniques—including survey and inspection techniques and control and preventive methods. However, the duties of some positions may vary with the specific field

of occupational safety (engineering, construction, industrial, chemical laboratories, explosives, etc.). Consequently, the particular demands of positions may vary widely. Consideration and selection of candidates for some positions may be limited to those whose records show evidence of the required capabilities for (1) discussing with employees and supervisors violations of highly specialized safety standards and practices and (2) recommending corrective action in operations requiring highly specialized prevention and control techniques.

INSERVICE PLACEMENT ACTIONS

For inservice placement actions only, the requirement for specialized experience for positions at grades GS–4 and GS–5 may be waived for reassignment of employees in related technician or trades occupations provided:

1. The candidate has had experience which has provided knowledge of the work of the position for which he is being considered; and
2. A review of the candidate's experience and performance indicates that he possesses the necessary skills and abilities, and evidences definite potential for successful performance of the work, such as:
   (a) Ability to interpret and apply specifications, regulations, and other similar guideline material,
   (b) Ability to effectively communicate through written and oral presentations, and
   (c) Ability to work independently and effectively carry out a sequence of established steps and procedures.

PHYSICAL REQUIREMENTS

See Part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

Community Planner, GS–5 through GS–15

DESCRIPTION OF WORK

Community planners perform professional work such as the following:

—Study and develop planning methods or plans to apply to future needs of communities (urban and rural neighborhoods, municipalities, counties, regions, States, or the Nation) in order to provide for the availability and development of resources, facilities, and services reguired by the people of the community.

—Advise and assist community officials and members to establish goals, priorities, policies, programs, organizations, regulations, and procedures in such areas as the pattern and intensity of land use, transportation facilities, housing, public utilities, public safety, health services, and environmental pollution control.

—Coordinate planning activities and programs at and between the several jurisdictional levels (local, regional, State, and national).

—Maintain an overview and evaluate policies and planning programs after initial installation to update them or suggest other approaches.

BASIC REQUIREMENTS FOR ALL POSITIONS GS–5 THROUGH GS–15

Candidates must show successful completion of A, B, or C below:

A. A full course of study leading to a bachelor's or higher degree with major study in community planning, or in a related field such as architecture, landscape architecture, engineering, sociology, geography, economics, political science, or public administration. The curriculum in the related field must have included or been supplemented by 12 semester hours in the planning process and the socio-economic and physical elements of planning.

B. Four years of education or experience, or both, including at least 24 semester hours in any combination of the disciplines listed in paragraph A above of which 12 semester hours must have been in the planning process and the socio-economic and physical elements of planning.

C. Successful completion in an accredited college of a full course of study leading to a bachelor's or higher degree in a related professional field such as those listed in paragraph A, provided the candidate has at least one year of work experience in community planning acquired under the supervision and guidance of a community planner. The experience should provide a through knowledge of the planning process and of the socio-economic and physical elements to be considered.

The combination of education and experience in B and C must demonstrate that the candidates possess professional knowledges and skills comparable to those normally acquired through the education described in paragraph A above.

Note: Successfully completed college level study in nonaccredited schools may be accepted under this standard as outlined in the provisions of Education in Nonaccredited Schools in section III, part II of this handbook.

GS–5. The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in or directly related to community planning.

This experience and education, or both must have equipped the candidates with the required knowledge of community planning concepts,

principles, techniques, and practices and the ability to perform the work of the position for which they are being considered.

[*Note:* The kind and quality of education and experience is a paramount consideration in the evaluation process. The evidence of the level and quality of experience possessed by candidates must give reasonable witness and expectation that they are capable of successfully discharging the duties and responsibilities of planning positions for which they are being considered. We wish to emphasize, it is not sufficient for candidates to demonstrate mere possession of the length of experience and education stated in these requirements.]

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Minimum amount of professional experience in or directly related to community planning	
Grade:	*Years*
GS–7	1
GS–9	2
GS–11 and above	3

For any grade, the required amount and type of professional experience will not *in itself* be accepted as proof of possession of adequate qualifications for a position. The candidates' record of experience and training must also clearly indicate that they possess personal qualities, knowledges, skills, or abilities of the kinds listed below. Candidates need not show mastery of all of the qualities, knowledges, skills or abilities listed; however, all candidates will be evaluated to determine whether they have enough to perform the duties of the jobs for which they are being considered.

Required knowledges, abilities, and personal characteristics

1. Knowledge of concepts, principles, techniques, and practices of community planning.

2. Knowledge of the interrelationships of elements of social science and design disciplines involved in human settlements and the dynamics of change within these elements.

3. Ability to use analytical methods and tools.

4. Ability to analyze planning problems.

5. Ability to identify and define goals and objectives.

6. Ability to develop measures to set up programs.

7. Ability to evaluate programs and measures used to implement them.

8. Ability to express ideas orally, in writing, or by means of graphics and sketches.

9. Ability to deal tactfully and diplomatically with others.

10. Ability to function under pressures, such as time limitations or intense public interest.

11. Ability to work with others on a team.

12. Resourcefulness and initiative (self-reliance or the ability to begin new undertakings).

For grades GS–11 and below, at least six months of the required professional experience must have been at the level of difficulty comparable to that of the next lower grade, or one year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least one year of the required professional experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Substitution of education for experience*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education with major study in or directly related to community planning*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.

3. *Combination of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptible at each grade. (Thirty semester hours, or the equivalent, of

part-time graduate education may be considered to be equal to one full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or one year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and one year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of Part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For the supervisory positions, the qualification standard for Supervisory Positions in General Schedule Occupations, in Part III of this handbook, should also be used.

SELECTIVE PLACEMENT

For positions that require particular knowledges and skills, consideration may be restricted to those candidates whose backgrounds indicate that they possess the required knowledges and skills. For example, some positions at the higher grade levels require specialized knowledges and skills in an area of community planning such as transportation planning or economic planning.

BASIS OF RATING

No written examination is required. Candidates will be rated, on a scale of 100, on the extent and quality of their experience and training. Such ratings will be based upon canidates' statements in their applications and upon additional information that may be secured by the Civil Service Commission.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the Amended Educational Requirement for Most Professional Positions in Science and Technology as stated in section III, part II of this handbook.

GUIDE FOR EVALUATION OF CANDIDATES IN RELATION TO JOB REQUIREMENTS

The nature and specific content of the basic education requirement is intended to provide community planners with:

1. A combination of basic knowledge that may be characterized as general administrative-political and public service knowledge;
2. A broad base of substantive knowledge of a variety of applicable disciplines, plus basic analytical and design methods and tools that provide substantive skills related to the physical-socioeconomic development of communities;
3. Problem-solving experience—case studies, individual problems, and group workshop problems.

The emphasis is on course content rather than on course titles. The content of the education requirement was selected to provide community planners an adequate background of knowledge and skills to use in dealing with typical community problems, and to develop basic attitudes and approaches applicable to the planning field, such as a sense of social responsibility, a sense of the limits to what one man knows, a willingness to turn to others for help, and knowledge of what a team can accomplish.

Community problems usually involve a mass of elements and interrelationships in loose association in an ever changing situation, the evolving community. The community planners must deal with more than one aspect of a problem. They should be acquainted firsthand with primary reference sources in community planning, and the interrelationship between the physical, social, and economic elements.

The focus of the physical elements of planning is: (1) the total physical environment—natural resources, physical factors in location, land use, utilities, and structures; (2) transportation—movement of people and things; (3) the physical limitations of a given environment; and (4) the potential for change in physical features.

The focus of the social and economic elements of planning is society and human behavior as it relates to community planning. This includes: (1) key factors in human behavior and goals implicit in a culture; (2) problems for which solutions are collectively sought; (3) the nature of social institutions; (4) the potential for and limits of planned, rational action; and (5) cost-benefit analysis—deciding among alternatives on the basis of cost and return.

While a wide variety of educational programs are acceptable, all place emphasis on the learning, thinking, and problem-solving processes so that the student is provided with both materials and procedures for continuing a lifetime of learning that will take place on the job. Distinctions in quality level may be made on the extent to which course-work contributes to the basic broad knowledge required in the community planning position for which the candidate is being considered.

Some candidates meet the basic experience requirements through a combination of education and experience. The following considerations are appropriate in evaluating this experience. The preprofessional experience should demonstrate that the individual has obtained a general knowledge of the fundamental principles and theories of planning. The experience should also provide progressive exposure and responsibility in planning activities. Normally such assignments are limited to one phase of planning activity such as research, data collection, surveys, data analysis, report writing, preparation of charts or maps. In combination with formal education the assignments should be varied enough to provide for the progressive growth of the candidate in the skills, abilities, and personal characteristics required to permit candidates to assume and carry out fully the duties and responsibilities of a planner in a professional manner.

The standard contains a list of fields and disciplines related to urban or regional planning. Since the list is prefaced by the phrase "such as," other related fields and disciplines may be considered.

Areas of concentration in community planning

The following illustrative areas of concentration in community planning may warrant consideration in filling positions:

1. *Administration for planning and development:* Define program, maintain legislative liaison and endorsement, plan staff selection and training, guide budget preparation, develop regulations, plan program implementation and coordination.
2. *Comprehensive physical planning:* Gather data, analyze data, define problems, develop, design, make cost benefits analysis, and arrange public presentation program.
3. *Resource development:* Identify existing and potential income producing activities, prepare resource development and conservation plans and supporting financial program plan.
4. *Social planning:* Identify and describe social problems, design plans and programs to alleviate problems, coordinate efforts with others concerned.
5. *Transportation planning:* Study existing systems and demand, project future needs, design a simulation of future systems related to future land use.
6. *Urban design:* Study existing and proposed community environment from functional, social, and economic aspects; prepare planning objectives; design programs related to goals.
7. *Research methodology and theory development:* Devise and treat theories, design and conduct community environment studies, using various data collection and analytical techniques, publish reports.
8. *Economic planning:* Measure current and past levels of economic activity in community, develop projection of future levels, evaluate economic needs, prepare proposed program to influence community economic growth.
9. *Environmental planning:* Survey existing community facilities for health services and environmental control; analyze levels

of performance and program coordination of community health and environment programs; develop plans to achieve community objectives.

10. *Renewal planning.* Determine existing physical conditions of community structures (occupancy, density, cost, access streets and roads available, utilities and facilities); identify community needs and resources; plan conservation, rehabilitation, and redevelopment needs; arrange use of available resources for renewal.

Considerations in Evaluating Grade and Quality Levels of Candidates' Experience

1. *Elements involved in community planning*

Communities are dynamic institutions and, to cope with community problems, community planners must grow in the breadth and depth of their knowledge, skills, and understanding of the major elements involved in community planning, such as knowledge of:

—The planning process
—Urbanism and the urbanization process
—Physical elements of planning
—Socioeconomic elements in planning
—Analytical and design methods and tools

In relation to the grade level and position, the background of education and experience of the planner should be evaluated to determine its contribution to progressive growth in breadth and depth of knowledge, understanding, and skill in applying the following elements:

(a) *The planning process*

(1) How it fits into decisionmaking and its influence on the daily operations of public and private organizations.

(2) The role of the public, legislature, executive, and government staff and line agencies in establishing community goals and choosing among alternative needs, etc.

(3) Major decisionmaking public groups, their attitudes and concerns, and effect on community development.

(4) The facts, values, priorities, research requirements and standards to be considered, the sequence to follow, the judgments involved, and limitations to recognize that arise in planning.

(b) *Urbanism and the urbanization process*

(1) The factors that determine the development, location, form, growth, or decline of cities.

(2) How economic technology, geography, and other factors influence community relations with regions and nation.

(3) The influence of government forms, functions, and changes (past, present, and future) on community development.

(4) How land use influences community structures (activity centers, circulation, and organization).

(c) *Physical elements in planning*

(1) How the theory of physical form and esthetic considerations relate to the three-dimensional aspect of a community.

(2) Principles related to the movement of people and things, intraurban and interurban movement, transportation as a factor in community growth and physical structure.

(3) Advantages and disadvantages of alternative uses for land.

(4) The interrelationship of housing, utilities, and facilities for shopping, recreation, education, health, etc., and the implications of construction codes and standards.

(d) *Socioeconomic elements in planning*

(1) How people relate to community planning, types of problems for which collective solutions are sought, controls that are ignored or resisted.

(2) The social institutions concerned with community problems and their points of view.

(3) The power structures and how the use of power influences community planning.

(4) How to evaluate alternative plans for costs and returns (cost-benefit analysis).

(e) *Analytical and design methods and tools*

(1) How to make and use community, physical, and social surveys; or to develop and use data on the economic base, industry linkage, traffic movement, and impact studies.

(2) How to use sampling methods and statistics in projections and predictions of community factors in dealing with short and long range objectives.

(3) How and when to use computers, mathematical models, and three-dimensional models.

(4) The basic techniques behind key design features of communities from ancient times to the present.

(5) How to develop project designs for different purposes (residential, commercial, industrial, recreational, etc.); or different circumstances (for new land, clearance and redevelopment, and renewal including rehabilitation and remodeling).

2. *Candidate's background*

(a) The candidate's background should be reviewed to determine the nature and difficulty of community planning problem-solving experience encountered.

—Did the problems require the use of initiative and judgment in choosing and using community-planning principles and methods?

—Did it require the candidate to advance in the profession; to develop and mature in professional judgment?

(b) Community planning impinges on most fields of human activity; consider the breadth and scope of the experience.

—Did the experience contribute to the planner's understanding of the way people from many cultural groups work and live in communities?

—Did the experience represent a melding together of planning principles and techniques, business and economic knowledge, legal requirements, and design sensitivity in land use?

(c) Work under the supervision of professional planners who could provide professional guidance and contribute to professional development is valuable, especially at introductory levels in the profession.

(d) In assigning values, recognize candidates who demonstrate interest in the profession of planning by augmenting their knowledge and development through extracurricular study and participation in programs sponsored by the profession.

(e) Consider other valuable experience representing progress and advancement in the profession.

—Has the candidate been responsible for supervising or reviewing planning work by other professionals?

—Has the candidate worked in a variety of organizations, different geographical areas, several jurisdictional levels (State, local, county, etc.)?

—Has the candidate had experience in public speaking or in making public presentations?

—Has the candidate had negotiating experience?

—Does the candidate's experience show an increasing independence of action, complexity, and importance of assignments?

PHYSICAL REQUIREMENTS

See Part II, Physical Requirements, paragraph 3; in addition, candidates must possess emotional and mental stability.

OUTDOOR RECREATION PLANNING SERIES

Outdoor Recreation Planner GS-5/15

STATEMENT OF DUTIES

Outdoor recreation planners plan and coordinate the use of land, water, and related resources for recreation purposes with appropriate consideration to protecting and enhancing the quality of the outdoor environment. They appraise needs for new or expanded outdoor recreation resources; identify and classify existing or potential outdoor recreation areas; develop and review outdoor recreation plans to meet present and future needs; assist Federal, State, local governments and private organizations in reclaiming and protecting the outdoor recreation environment and providing recreation opportunities; and develop standards and methods for outdoor recreation planning.

BASIC REQUIREMENTS FOR GRADES GS-5/15

Either A, B, or C is required:

A. A full 4-year course of study leading to a bachelor's degree in an accredited college or university in outdoor recreation planning or a closely related field, such as: Sociology, forestry, landscape architecture, economics, biological science, park administration, earth science, natural resource management and conservation, civil engineering, urban planning or recreation.

B. Three years of professional, managerial, or technical experience which demonstrates that the candidate possesses:

(1) Understanding of the requirements and practices of outdoor recreation planning or natural resource utilization and conservation;

(2) The ability to deal effectively with individuals and groups of people;

(3) The ability to collect, organize, analyze and interpret land use information including statistical material;

(4) Skill in making written analytical presentations; and

(5) The ability to apply sound judgment to outdoor recreation planning problems.

C. Any time equivalent combination of education and experience as defined in A or B above.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either pertinent experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. The experience or graduate education must have provided the knowledges and abilities required for planning and coordinating the use of land, water and related resources for recreation and conservation purposes. This additional experience or education must have equipped the candidate with the knowledge and ability to perform the work of the position for which he is being considered. The required knowledges and abilities are more important considerations than the length or type of experience. Illustrative qualifying experience includes:

—the analysis and evaluation of outdoor recreation interests, habits, and needs of diversified groups and the means for meeting these needs;

—the evaluation of land or water areas for their recreation and related potential use such as wildlife reserve;

—the preparation or review of plans and programs for natural resource utilization and recreation area development;

—the solution of administrative, intergovernmental, socioeconomic and other problems involved in providing adequate recreation opportunities while preserving, restoring, and enhancing the quality of the outdoor environment.

1. *Experience*

In addition to the basic requirements, the following amounts of experience are required for grades GS-7 and above:

Grade	Minimum amount of outdoor recreation planning experience (years)
GS-7	1
GS-9	2
GS-11 and above	3

(TS 134)
June 1970

Reprinted without change
December 1975 (TS 156)

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of graduate education are qualifying for grades GS–7 and above, as shown:

Grade	*Minimum amount or level of graduate education in related subject-matter fields including some course work in or directly applicable to outdoor recreation planning*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent).

3. *Alternate requirements*

Superior academic achievement at the baccalaureate level is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate or similar experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

→*Supervisory positions*

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

WRITTEN TEST

An appropriate written test (FSEE) is required for positions at grades GS–5 and GS–7. It should be waived for inservice placement actions.

BASIS OF RATING

For grades GS–5 and GS–7, candidates will be rated on the basis of their scores on the written test and an evaluation of their experience and training.

For grades GS–9 and above, candidates will be rated on the basis of the quality and extent of their total experience, education, and training. Ratings will be based on statements in the application form and any additional evidence received by the Commission.

SELECTIVE PLACEMENT

Some positions may require the possession of specialized knowledges and skills. Selective placement may be used in such instances to assure that only those candidates with appropriate experience, training, or other qualifications are considered.

GUIDE FOR EVALUATION OF CANDIDATES

1. *Evaluation of education*

The following list suggests in greater detail some types of courses which are qualifying under the related disciplines mentioned in paragraph A:

Biological science
botany
horticulture
agronomy
wildlife biology
ecology
fishery biology

Natural resource management and conservation
forestry
range management
soil conservation
recreation land management
park administration

Social science
economics
sociology
political science
social psychology
cultural geography
anthropology

Design and planning
urban or regional planning
landscape architecture
civil engineering

Earth science
physical geography
hydrology
soils
geology

OUTDOOR RECREATION PLANNING SERIES

Educational preparation for outdoor recreation planning should ideally cover field natural sciences (biological sciences and earth sciences) and social sciences. Study in greater depth than is provided in introductory courses in several of the related disciplines is very desirable.

Some coursework in the following is also directly useful in outdoor recreation planning: Communications skills (e.g., public speaking, technical writing); public administration or business administration.

The outdoor recreation planner who has broad preparation beyond basic requirements is better prepared and more likely to advance in the occupation.

Though graduates in a number of disciplines may qualify for these positions, graduates of directly applicable curricula in outdoor recreation area management or planning are particularly well-qualified.

In evaluating graduate education it should be borne in mind that outdoor recreation planning is a relatively new field. Candidates who qualify on the basis of master's degrees in related disciplines should have an identifiable portion of their academic course work, e.g., a course or more, in outdoor recreation.

2. *Evaluation of experience*

The candidate's experience should show progression in duties and responsibilities at least to a level which demonstrates his ability to perform successfully at the level for which he is being considered. Preferably, the experience should be recent.

Outdoor recreation planning experience which required use of principles and practices from several of the related fields is valuable because of its breadth, especially if it stressed the relationship between man and his environment, i.e., required use of social as well as natural science knowledges. For positions whose work is in *one* of the functional areas of recreation planning, consideration should also be given as appropriate to the depth and intensity of experience in that function.

3. *Knowledges, abilities, and other qualifications*

The following are some prime qualities to seek in candidates for outdoor recreation planner positions:

—ability to work independently;
—ability to plan and organize work;
—ability to deal effectively with various types of people, singly, and in groups;
—comprehension of the concepts and practices of natural resource utilization;
—ability to communicate effectively orally and in writing;
—knowledge of socioeconomic relationships;
—ability to analyze, absorb, and retain information from oral and written presentations of a complex nature;
—ability to conceptualize;
—an understanding of area planning, including land use.

Many of the factors mentioned above are intangibles and will require objective appraisals from supervisors, college instructors, or others who have had occasion to work closely with candidates or review their work.

4. *Methods of evaluation*

FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement, describes methods of value in appraising employees' qualifications and promotion potential.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

Park Ranger, GS-1/15

Park Manager, GS-9/15

Park Managers and Rangers supervise, manage, and perform work in the conservation and use of resources in National Parks and other Federally managed areas. Park Rangers carry out various tasks associated with forest or structural fire control; protection of property; gathering and dissemination of natural, historical, or scientific information; development of interpretive material for the natural, historical, or cultural features of an area; demonstration of folk art and craft; enforcement of laws and regulations; investigation of violations, complaints, trespass/encroachment, and accidents; search and rescue; and management of historical, cultural, and natural resources such as wildlife, forests, lakeshores, seashores, historic buildings, battlefields, archeological properties, and recreation areas.

EXPERIENCE, EDUCATION AND TRAINING REQUIREMENTS

Applicants must have the kinds, quality, and amount of experience, education, and/or training indicated in the following paragraphs for each grade.

GS-1 —
- No experience, training, or education is required. Candidates must be interested in and willing to learn park ranger work and show evidence of likelihood of success in these assignments.

GS-2 —
- Six months of general experience; or
- Graduation from a full four-year or senior high school or possession of a General Educational Development High School Equivalency Certificate.

GS-3 —
- One year of general experience; or
- Completion of 1 year of study in an accredited college or university that included or was supplemented by at least 6 semester hours of course work in any one or a combination of the core curricula described at the GS-5 level.

GS-4 —
- One year of specialized experience; or
- Completion of 2 years of study in an accredited college or university that included or was supplemented by at least 12 semester hours of course work in any one or a combination of the core curricula described at the GS-5 level; or
- Any equivalent combination of experience, education, and training.

GS-5 —
- Two years of specialized experience; or
- Completion of a full four-year course of study in an accredited college or university leading to a bachelor's or higher degree that included or was supplemented by 30 semester hours of course work in any one or a combination of the following: any field-oriented natural science, natural resource management, earth science, history, archeology, anthropology, park and recreation management, or other closely related subjects pertinent to the management and protection of natural and cultural resources; or
- Any equivalent combination of experience, education, and training.

ADDITIONAL SPECIALIZED EXPERIENCE, EDUCATION AND TRAINING REQUIREMENTS

In addition to the requirements for grade GS-5, the following amounts of specialized experience and/or education are required for grades GS-7 and above:

GS-7 —
- One year of specialized experience; or
- Completion of 1 full academic year of graduate education in a subject described at the GS-5 level; or
- Any equivalent combination of experience, education, and training.

GS-9 —
- Two years of specialized experience; or
- Completion of all requirements for a master's or equivalent degree, or 2 full academic years of graduate education, in a subject described at the GS-5 level; or
- Any equivalent combination of experience, education, and training.

GS–11 and above —
- Three years of specialized experience; or
- Any equivalent combination of experience, education, and training.

Definition of Terms

- General experience — This is any experience which provides evidence of one or more of the following abilities:
  —The ability to deal effectively with individuals in a courteous, tactful manner in a variety of work environments, including stress situations;
  —The ability to convey information orally to groups in formal and informal settings; and/or
  —The ability to compose clear accurate reports or correspondence.
- Specialized experience — This is technical, administrative, or scientific experience gained in park operations, fish and wildlife management, recreation management, historic preservation, natural and cultural resource management, or park-related work. Examples of qualifying experience include, but are not restricted to, (1) experience as a park guide or tour leader; (2) experience in law enforcement and investigative work in a park, recreation, or conservation area; (3) experience as a technical aid or assistant in archeological or historical preservation research and development work; (4) experience as an aid or technician in forestry and fire management activities in a park, recreation, or conservation area; (5) experience in carrying out a variety of complex maintenance activities as might be gained as a maintenance supervisor or manager in a park or conservation area; (6) comparable experience as an aid, guide, or technician in the conservation, interpretation, and use of parks, forests, outdoor recreation areas or other lands or resources used by the public; (7) experience as an administrative officer in administrative fields such as budget, personnel, finance, and property management in a park or recreation area; or (8) experience as a management assistant or program specialist in development and implementation of policy relating to protection and management of park areas and to overall program coordination and policy development.

Alternate Requirements

Superior academic achievement at the baccalaureate level is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of specialized experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this Handbook must be met.

QUALITY AND LEVEL OF EXPERIENCE

For positions at any grade the amount of experience will not in itself be accepted as proof of qualification. The candidate's record of experience and training must show the personal qualities and the knowledges, skills, and abilities appropriate to the duties and responsibilities of the grade for which the candidate is being considered.

In evaluating each candidate's experience and training, attention should be given to the following factors:

1. Knowledge of general operations, conservation, or outdoor recreation programs pertinent to the duties of the position.
2. Knowledge of subject-matter fields pertinent to the work to be performed.
3. Ability to make constructive suggestions for modification or improvement of methods, procedures, plans, techniques, equipment, or programs.
4. Ability to work independently and plan day-to-day activities.
5. Ability to meet and deal effectively with visitors.

For eligibility at grade *GS-4*, at least 6 months of the required specialized experience must have been comparable in difficulty and responsibility to grade GS-3 in the Federal Service.

For eligibility at grade *GS-5*, candidate must have had at least 1 year of specialized experience comparable in level of difficulty and responsibilty to grade GS-4 in the Federal Service.

For eligibility at *grades GS-7 through GS-11*, at least 6 months of the required experience must have been at a level of difficulty and responsibility comparable to that of the next lower grade, or one year comparable to the second lower grade, in the Federal Service.

For eligibility at *grades GS-12 and above*, at least 1 year of the required experience must have been at a level of difficulty and responsibility comparable to that of the next lower grade in the Federal Service.
(See also Federal Personnel Manual, Chapter 300, Subchapter 6.)

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this Handbook also should be used.

SELECTIVE PLACEMENT

A varying amount of selectivity is required to fill certain positions in this series. Some positions require that particular kinds or combinations of knowledges be applied more intensely than in other positions. In these cases, therefore, it is appropriate to use selective placement techniques, i.e., only those candidates who have appropriate education, training, or experience should be referred for employment consideration. The use of selective placement factors is authorized and encouraged for filling these kinds of positions. Where selective factors are used, however, they must be demonstrably related to the knowledge, skills, abilities, and other characteristics considered essential to produce candidates capable of satisfactorily performing the duties of the positions to be filled; also the factors should represent minimum acceptable qualifications for these positions.

The appropriateness of the factors should be reflected in the duties and responsibilities of the position as presented in the position description or in other official information provided by the employing agency. Additionally, the use of these factors must not result in the establishment of an unreasonably high or overly restrictive requirement. That is, the proposed selective factors should not be used if it is evident that other eligibles could perform satisfactorily after a brief orientation period. (In some cases a selective factor may not be fully justified as such but may properly be used as a quality ranking factor.)

BASIS OF RATING

At grade GS-1, candidates will be rated on their willingness to perform simple procedures, their dependability, and their ability to work safely.

At grades GS-2 and above, candidates will be rated on the basis of the quality and extent of their total experience, education, and training. Ratings will be based on statements in the application form and any addi-

tional evidence received by the Office of Personnel Management.

INSERVICE PLACEMENT ACTIONS

Waiving the Specialized Experience Requirement at GS-4 and GS-5

For inservice placement actions only, the experience requirement for positions at grades GS-4 and GS-5 may be waived for lateral reassignment of employees in related occupations provided:

1. The employee has had experience which has provided knowledge of the work of the position for which the employee is being considered.

AND

2. A review of the employee's experience and performance evidences that the employee has demonstrated the skills and abilities necessary to learn and successfully perform the work.

Park Manager and Other Supervisory Positions

Employees with administrative, professional, or managerial experience in programs or functions supporting and sustaining park operations (e.g., administrative management, facilities management, engineering, landscape architecture, or personnel management) and involving direct dealings with park managers, may be excellent candidates for park manager positions where the employee's *total* background demonstrates a good understanding of park management and operational practices and techniques.

PHYSICAL REQUIREMENTS

The following requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions:

Applicants and employees must have the capacity to perform the essential functions of the position without risk to themselves or others. In most cases, a specific medical condition or impairment will not automatically disqualify an applicant or employee. A physical condition or impairment may be disqualifying if the condition, for good medical reason, precludes assignment to or warrants restriction from the duties of the specific position. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation shall also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

In positions where there is exposure to environmental agents for which there are occupational/environmental standards which require protective measures or medical surveillance, applicants and employees shall undergo initial and periodic medical evaluation in accordance with the surveillance requirements.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

ENVIRONMENTAL PROTECTION SPECIALIST SERIES

Environmental Protection Specialist
GS–5/15

Description of Work

Environmental Protection Specialists perform work which involves: (1) providing advice and assistance to state and local government agencies on matters relating to the development, execution, and maintenance of adequate environmental protection plans and programs, and the development and review of related grant proposals; (2) reviewing, analyzing, and recommending modification where necessary, of plans developed by states to implement various provisions of Federal environmental standards, (3) developing and analyzing data and preparing reports relating to the responsiveness of implementation plans for state environmental protection programs, the type and level of local and regional environmental planning, and similar activities, (4) reviewing, analyzing and coordinating preparation of, or preparing comments on environmental impact statements, (5) developing and/or analyzing proposals for new or revised environmental protection regulations and determining their impact on air, water, and land resources, and (6) conducting studies to identify environmental problems, and performing analytical work which contributes to the effectiveness of environmental plans, programs, and methods. The work requires the exercise of discretion and independent judgment in the application of knowledge of the principles, practices, and techniques of environmental planning and protection.

EXPERIENCE AND EDUCATION

Table of Minimum Requirements

Grade	General	Specialized	Total
GS-5	3	0	3
GS-7	3	1	4
GS-9	3	2	5
GS-11/15	3	3	6

General Experience and Education

For positions at grade GS–5 and above, applicants must have a background of one of the following:

A. A full 4-year course in an accredited college or university leading to a bachelor's degree; or

B. Three years of experience in administrative, professional, technical or other work that has required the ability to organize, analyze and evaluate facts and concepts and prepare written material, and ability to meet and deal effectively with individuals or groups; or

C. Any time equivalent combination of experience and education defined in A. and B. above. In combining education with experience, an academic year of study which comprised 30 semester hours or 45 quarter hours is considered equivalent to 9 months of experience.

Specialized Experience

This is experience in progressively responsible positions requiring the knowledge and abilities to make determinations regarding environmental problems, plans, and programs. Specialized experience may be gained through:

(1) Experience in staff analysis, program planning, or program administration work concerned with environmental protection, community planning, public health program activities related to environmental problems, or similar administrative functions.

(2) Advisory or research work involving the development of solutions to problems concerning environmental protection, community planning, or environmentally related public health programs.

(3) Work involving the development of pertinent factual information concerning environmental pollution through the use of on-site inspection techniques, the analysis of the results, and the development of conclusions and recommendations re-

garding enforcement of regulations as a result of infractions.

Sustitution of Education

Full-time graduate education may be substituted for specialized experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he or she is being considered.[1]

a. *For one year of specialized experience*—
One full academic year of graduate education in public administration, political science, sociology, community planning, economics, environmental studies, geography, or other fields directly related to the duties of the position to be filled. (This amount and kind of education meets all the requirements for grade GS–7.)

b. *For two years of specialized experience*—
Completion of all requirements for a master's or an equivalent degree, or two full academic years of graduate education, which is in one of the fields identified in paragraph a. above. (This amount and kind of education meets all the requirements for grade GS–9.)
Completion of at least six years of legal and prelegal education which meets all the requirements for an LL.B. or J.D. degree will meet all the requirements for grade GS–9 for those positions where the legal course work is directly relevant to the work of the position to be filled.

The Superior Academic Achievement Standard in Section III, Part II Instructions to Users in Civil Service Commission Handbook X–118 is applicable at grade GS–7.

Quality of Experience

Except for candidates who qualify on the basis of substitution of education for experience, for positions at grades GS–11 and below at least 6 months of experience must have been at a level of difficulty and responsibility equivalent to the next lower grade in the Federal service, or 1 year of such experience at a level equivalent to the second lower grade in the Federal service. For positions at grades GS–12 and above, candidates must have had at least 1 year of the required experience at a level equivalent to the next lower grade in the Federal service. For positions at any grade, the required amount of experience will not in itself be accepted as proof of qualification. The candidate's record of experience and training must show the ability to perform the duties of the position.

Supervisory Positions

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of U.S. Civil Service Commission Handbook X–118 should also be used.

WRITTEN TEST

Candidates for competitive appointment to grades GS–5 and GS–7 must pass an appropriate test. For inservice placement actions, the test is not required and, therefore, may not be used on a pass-fail basis. In addition, the test may not be used in evaluating or ranking eligible employees unless the test is approved for this purpose by the Civil Service Commission.

BASIS OF RATING

For positions at grades GS–5 and GS–7, candidates will be rated on a scale of 100 based upon their score on the written test and an evaluation of their training and experience. Candidates for grades GS–9 and above will be rated on a scale of 100 on the extent and quality of their experience and training relevant to the duties of the position applied for. Such ratings will be based upon competitors' statements in their applications and upon any additional evidence secured by the Civil Service Commission.

SELECTIVE PLACEMENT

Some positions may require the possession of specialized knowledges and abilities. Selective

[1] Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for one year of specialized experience.

placement may be used in such instances to assure that only those candidates with appropriate experience, training, or other qualifications are considered.

PHYSICAL REQUIREMENTS

Applicants must be physically able to perform the duties of the position efficiently and without hazard to themselves or to others. Ability to read without strain printed material the size of typewritten characters is required, corrective lenses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required for most positions; however, other positions may be suitable for the deaf. In most instances, an amputation of arm, hand, leg, or foot will not disqualify for appointment, although it may be necessary that this condition be compensated by use of satisfactory prosthesis. Applicants must possess emotional and mental stability.

Sports Specialist GS-5/15

DESCRIPTION OF WORK

Sports specialist positions require a thorough knowledge of the physical and psychological factors of individual and team sports, and the nature, purpose, and organization of recreational or competitive individual and team sports activities. Sports specialists (1) plan or carry out sports programs, or evaluate program effectiveness, (2) conduct clinics or seminars to train coaches, officials, or others, (3) train and develop athletes in individual or team sports, or (4) plan or carry out tournaments or competitions from the intramural to the international levels.

BASIC REQUIREMENTS FOR ALL GRADES

As a basic requirement, applicants must have education or experience as described under either A, B, or C below:

A. A full 4-year course in an accredited college or university with major study in physical education; *or*

B. Three years of experience in which the candidate has demonstrated a good knowledge of the physical and psychological factors in individual and team sports, and the nature, purpose, and organization of recreational or competitive individual and team sports equivalent to that which he would have gained through the education described in A above. This experience may have been gained in such assignments as (1) a physical education specialist, or (2) an athletic director, administrator, or coach in an educational, community, or industrial sports program, or (3) an umpire, official, or manager of individual or team sports competitions; *or*

C. Any equivalent combination of A and B above, provided each year of education has included at least 6 semester hours of course work appropriate to the field of sports. Appropriate education may be substituted for experience on the basis of 1 year of academic study for 9 months of experience.

GS-5.—The basic requirements which apply to all grades are fully qualifying for positions at grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS FOR GRADES GS-7 AND ABOVE

In addition to meeting the basic requirements for GS-5, applicants for higher grades must have the amount and kind of specialized experience described below:

Grade:	*Years of specialized experience*
GS-7	1
GS-9	2
GS-11/15	3

SPECIALIZED EXPERIENCE

Specialized experience is that which shows that the candidate has:

—Ability to plan, supervise, administer, or carry out a sports program that includes a variety of individual and team sports.

—Ability to guide participants in developing the skills needed for participation in sports activities and to teach the techniques of various sports.

This experience may have been gained in such work as:

—Managing, administering, directing, or serving as a sports specialist or athletic director in a community, industrial, secondary school, or college or university sports program.

—Planning, establishing, or evaluating a physical education curriculum for secondary or higher academic levels, or teaching athletics.

—Managing and directing amateur or professional athletic events, competitions, tournaments or games.

SUBSTITUTION OF EDUCATION FOR SPECIALIZED EXPERIENCE

Full-time graduate education in physical education may be substituted for experience on the following basis. *This education must have equipped the candidate with the knowledge and*

ability to perform fully the work of the positions for which he is being considered.

A. *For 1 year of specialized experience.*—One full year of graduate study in physical education. (This amount and kind of education meets all the requirements for grade GS–7.)

B. *For 2 years of specialized experience.*—Completion of all the requirements for a master's (or equivalent) degree in physical education or 2 full years of graduate education in the field.

C. *For 3 years of specialized experience.*—Completion of all the requirements for the doctoral degree (Ph. D. or equivalent).

D. *Alternate requirements.*—

1. Superior academic achievement at the baccalaureate level is qualifying at grade GS–7. The pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.
2. A combination of superior academic achievement and 1 year of appropriate specialized experience is qualifying at grade GS–9.

E. *Combinations of specialized experience and graduate education.*—Equivalent combinations of specialized experience and graduate education of the type described above are acceptable at each grade. (Thirty semester hours, or the equivalent part-time graduate education, may be considered to be equal to 1 full academic year of graduate education.)

QUALITY OF EXPERIENCE

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to the next lower grade, or 1 year comparable to the second lower grade in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to the next lower grade in the Federal service.

This experience or education must have equipped the candidate with the knowledge and ability to fully perform the work of the position for which he is being considered.

BASIS OF RATING

No written test is required. Candidates will be rated on the basis of their education, training, experience, and personal qualifications in relation to the requirements of the specific position for which they are being considered.

Rating will be based on the candidate's statements in the application and on any additional evidence that may be received.

SELECTIVE PLACEMENT

Sports specialist positions may vary significantly in the kinds and combinations of specialized knowledges and skills required. For example, the successful performance of the work of some positions may require one or more of the following:

—Ability to identify the sports interests of diverse individuals or groups.
—Ability to stimulate interest and participation in sports activities.
—Ability to develop sports programs that will meet the recreational, educational, physical, or psychological needs of participants.
—Ability to lead or guide the sports activities of individuals or groups at varying levels of development and with varying degrees of skill.
—Ability to teach the technical skills and techniques of one or more sports.
—Ability to determine and justify the funds, equipment, and facilities needed to carry out a sports program.
—Ability to carry out research in the techniques of sports and to adapt techniques, equipment, or activities to meet the health or safety needs of participants.
—Ability to write clearly and concisely.

For such positions, consideration and selection may be limited to those candidates whose records show evidence of the required capabilities.

QUALIFICATION INQUIRIES

Inquiries, including contacts with applicants' present and former supervisors and associates, may be made to obtain further information concerning applicants' technical and personal qualifications and general suitability for these positions.

INTERVIEW REQUIREMENTS

Skill in interpersonal relationships is vital to success in sports specialist positions. Accordingly, applicants may be required to appear for a pre-employment interview. The purpose of this interview is to permit the evaluation at first-hand of the personal qualities that are important to success in these positions.

SUPERVISORY POSITIONS

For supervisory positions see the qualification standards for "Supervisory Positions in General Schedule Occupations" in part III of this handbook.

EVALUATION OF EDUCATION AND EXPERIENCE

Education

The evaluation of education requires particular care. Particular attention should be devoted to the extent to which the substance of the course work offered by the candidate has equipped him with the knowledges and skills essential to success in the position to be filled.

Experience

Evaluation of the kind and level of experience offered by candidates requires particular care. It should be based on careful consideration of the knowledges, skills, and abilities offered by the candidates in relation to the specific requirements of the position to be filled. For example:

—For assignments that involve program planning and management, experience in planning, carrying out, or evaluating a recreational or other program in sports is more valuable than experience as an instructor or a specialist in one or more sports.

—For assignments that involve demonstrating or instructing in the techniques of one or more sports, experience as a teacher or coach is more valuable than experience in planning or evaluating a physical education curriculum.

METHODS OF EVALUATION FOR INSERVICE PLACEMENT

FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement, provides guidance in assessing candidates' qualifications and promotion potential.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

FUNERAL DIRECTING SERIES*

Funeral Director GS–6/9
Mortuary Officer GS–11/13

Description of work

Funeral directors supervise or perform work in a hospital, domiciliary, or other medical care facility which involves planning and directing details relating to arrangements for funeral services and burial, transportation of remains, and meeting and carrying out the wishes of relatives of the deceased. This may include responsibility for embalming, and for supervising and training embalmers.

Mortuary officers perform work in connection with the administration of a mortuary program for an agency, including responsibility for developing procedures to guide the mortuary service at hospitals and other installations.

License requirement

Applicants must be licensed as a funeral director and embalmer by a State, Territory of the United States, or the District of Columbia.

Experience and education

Except for the substitution of education for experience as indicated below, applicants must have had progressively responsible experience as shown in the following table, and as defined in the subsequent sections.

Table of minimum experience required

Grade	Total (years)	Embalmer (years)	Funeral directing (years)
GS–7	4	3	1
GS–8	4½	3	1½
GS–9	5	3	2
GS–10	5½	3	2½
GS–11 or above	6	3	3

1. *Embalmer.*—This applies to progressively responsible experience as an embalmer, including the making of plastic restorations.

2. *Funeral Directing.*—This applies to progressively responsible experience as a funeral director. This experience must have been such as to require the application of a knowledge of the laws governing mortuary activities including transportation of remains, and must have included successful contacts with individuals, groups, and the public. Also in this category is experience gained in a responsible administrative capacity in connection with a large mortuary program.

3. *Substitution of education for experience.*—Each successfully completed year of study in a residence school or institution above high school level, with major study in business administration or premedical subjects, may be substituted for the general embalming experience at the rate of 1 year of study for 9 months of experience, up to a maximum of 4 years of study for 3 years of experience. Study in a residence school of embalming or a school of mortuary science may be substituted on a year-for-year basis up to a maximum of 3 years of study for 3 years of general embalming experience. Education may not be substituted for more than a total of 3 years of experience, nor for any portion of the required specialized experience.

4. *Quality of experience.*—For positions at any grade, the required amount of experience will not in itself be accepted as proof of qualification. The applicant's record of experience and training must show that he has the ability to perform the duties of the position. For positions at grades GS–7 through GS–11, at least 6 months of the experience must have been at a level equivalent to the next lower grade, or 1 year equivalent to the second lower grade in the Federal service. For positions at grade GS–12 or above, applicants must have had at least 1 year of experience equivalent to the next lower grade.

Applicants for mortuary officer positions must have had experience which developed a thorough knowledge of all phases of a large mortuary program, and must have demonstrated capacity for administrative responsibility commensurate with the degree of responsibility required in the duties of the position.

*This standard is not based on an occupational study, but simply represents a restatement, in X–118 format, of the qualification requirements in PES 768. It is intended to provide qualification standard coverage for this series until such time as an occupational study can be made. (This qualification standard cancels and supersedes Probational Examination Specification 768 and all revisions.)

(TS 72)
April 1963

Reprinted without change
December 1975 (TS 156)

→*Supervisory positions*

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard. ←

Basis of rating

Applicants will be rated on the extent and quality of their experience. Information upon which to make a rating will be obtained from the standard application form, and whatever other information may be supplied to or requested by the Commission.

Physical requirements

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

P.R. Codes: A–1, 3; B–1, 2, 3, 4, 5, 6, 7, 8; C–1, 2, 3; D–1; E.

CLOTHING DESIGN SERIES **GS–062**

Clothing Designer GS–5/15

Clothing Designer (Patterns) GS–7/15

Experience requirements

Except for the substitution of education provided for below, applicants must show progressively responsible experience in clothing design or closely allied work as follows:

Grade	Total experience (years)	General experience (years)	Specialized experience (years)
GS–5	3	3	0
GS–7	4	3	1
GS–9	5	3	2
GS–11 and above	6	3	3

General experience: This experience must have been acquired in the design, tailoring, manufacture, or modification of men's and/or women's clothing, headgear, footgear, or handgear, or in textile technology.

Specialized experience: This experience must have been acquired in the design and development of highly tailored outer garments or specialized occupational clothing such as aviator's and paratrooper's clothing, submarine escape suits, coveralls, field jackets, helmets, footgear, or other clothing for a particular functional or occupational purpose. Experience must have demonstrated knowledge of layout and fabrication methods.

At least 1 year of the specialized experience must have been acquired at or equivalent to the next lower grade for positions in this series as shown above.

For positions of Clothing Designer (Patterns) at grades GS–9 and above, the specialized experience must have included at least 1 year of experience which involved primarily pattern making or grading.

For all positions, the required amount of experience will not in itself be accepted as proof of qualifications. The applicant's record of experience or training must show that he has the ability to perform completely the duties of the position. For example, for positions involving design of footgear, the applicant's record should demonstrate knowledge of footgear design of appropriate breadth and intensity.

→*Supervisory positions*

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

Substitution of education for general experience:

(1) Pertinent resident study successfully completed in a college, university, technical institute, or other school above high school level in textile technology, tailoring, clothing design, clothing production, anthropometry, anatomy, or physiology may be substituted at the rate of 1 year of education for 9 months of general experience.

(2) One year of successfully completed graduate study in the above fields may be substituted for 1 year of general or specialized experience.

(3) The successful completion of a 4-year vocational high school course in the garment trade, tailoring, or clothing design may be substituted for 1 year of the required general experience.

Physical requirements

See part 2, Physical Requirements, paragraph 5; in addition, applicants must be able to distinguish shades of colors. (March 1961)

Fingerprint Clerk GS-2, 3, 4, 5, and 6
Fingerprint Examiner GS-7 and 8

Applicants must have had progressively responsible experience in fingerprint analysis requiring a knowledge of the Henry System of fingerprint classification and must have demonstrated the ability to apply basic techniques, formulas, and rules in establishing initial identity of prints. The amount and type of experience required for each grade follow:

Grade	General (years)	Specialized (years)	Total (years)
GS-2	None	None	None
GS-3	½	½	1
GS-4	1½	½	2
GS-5	2	1	3
GS-6	2	1½	3½
GS-7	2	2	4
GS-8	2	2½	4½

General: General office clerical experience or experience in fingerprint classification and searching.

Specialized: Progressively responsible experience in fingerprint classification and searching as follows:

GS-3: Experience in general fingerprint classification and searching.

GS-4: Experience in fingerprint classification and searching, 3 months of which must have been at a level of difficulty equivalent to that of Fingerprint Clerk GS-3, demonstrating a good knowledge of the Henry System and fingerprint classification formulas and techniques.

GS-5: Experience, 6 months of which must have been at a level of difficulty equivalent to that of Fingerprint Clerk GS-4, involving responsibility for classifying and searching based on a thorough knowledge of fingerprint identification principles and techniques and the Henry System of classification, and involving skill in all general phases of fingerprint classification and ability to classify and reference obscure or blurred prints.

GS-6: Experience, 6 months of which must have been at a level of difficulty equivalent to that of Fingerprint Clerk GS-5, involving responsibility for difficult and responsible assignments which presented unusual problems of identification and required expert knowledge of the Henry fingerprint classification system and of fingerprint classification formulas and techniques. For supervisory positions, applicants must have demonstrated ability to plan and review the work of a group of fingerprint clerks.

GS-7: Experience including 1 year as a working supervisor of a group of fingerprint clerks. One year of the total experience must have been at a level of difficulty equivalent to that of Fingerprint Clerk GS-5, or 6 months must have been at the level of difficulty equivalent to that of Fingerprint Clerk GS-6, and must have involved responsibility for difficult classification work requiring an expert knowledge of the Henry classification system and fingerprint classification principles and techniques.

GS-8: Experience including 1 year of experience as a working supervisor of a group of fingerprint clerks. One year of this experience must have been at a level of difficulty equivalent to that of Fingerprint Clerk GS-6, or 6 months must have been at a level of difficulty equivalent to that of Fingerprint Examiner GS-7, and must have involved responsibility for difficult classification work requiring an expert knoweldge of the Henry classification system and fingerprint classification principles and techniques.

Substitution: Applicants may substitute in accordance with A, B, or C below:

A. Education in a residence school above high school level may be substituted for general experience at the rate of one full year of education for 9 months of general experience.

B. Resident study successfully completed in the Henry System of fingerprint classification may be substituted for general experience at the rate of 1 month of education for 1 month of general experience up to a maximum of 12 months of general experience. Such education may also be substituted for the specialized experience required for Fingerprint Clerk GS-3 only.

C. Correspondence courses successfully completed in the Henry System of fingerprint classification may be substituted for general experience at the rate of 1 month of education for 1 month of general experience up to a maximum of 3 months. Such education may also be substituted for specialized experience required for Fingerprint Clerk GS-3 only.

A written test is required.

When an agency elects to waive the written test requirement in noncompetitive actions for grade GS-2, the following alternate standards will be applied:

Except for the substitution of education provided for above, applicants must have had progressively responsible general office clerical experience or experience in fingerprint classification and searching, in the amounts indicated below:

GS-2 ..... 6 months

See part 2, Physical Requirements, paragraph 2. (April 1957)

Security Administration Specialist or Officer GS–5/15
for filling the positions of
Personnel Security Specialist or Officer
Industrial Security Specialist or Officer
Security Classification Specialist or Officer
Foreign Exchange Security Specialist or Officer
Visit Control Security Specialist or Officer
Internal Security Specialist or Officer
Physical Security Specialist or Officer
Security Specialist or Officer (General)

I. Description of Work

Security specialists or officers direct, plan, develop, coordinate, control, inspect or execute programs designed primarily to protect the national security against espionage, sabotage, and related threats in cases of persons employed or to be employed by the Government; in cases of industrial facilities and personnel entering into contracts with agencies of the Government; and in cases requiring safeguarding of official information in the interests of the defense of the United States. In performing these duties they are typically responsible for participating in formulating policies, standards, procedures and methods, and for their application. Security specialists or officers participate in the promulgation of regulations and rules, and in the preparation of instructional and training information and of other material for use in connection with security programs and systems. They plan, organize and conduct training programs to acquaint and instruct Government personnel and industrial management and employees in security matters, and to alert them to the dangers of espionage and sabotage; and they maintain personnel security records, files, reports, and forms. Some security specialists or officers in the higher grade levels also present cases.

Specifically:

(1) *Personnel Security Specialists or Officers* determine the sensitivity of positions; review and evaluate reports of investigations on employees and on applicants for employment; make security determinations within the limits of delegated authority or recommend action to higher authority; prepare statements of charges, suspension, and termination. Specialists in the higher grades in headquarters offices may inspect field security offices for efficiency of employees and effectiveness of operations.

(2) *Industrial Security Specialists or Officers* schedule investigations of facilities of contractors and prospective contractors on Government classified defense matters; review reports of investigations and issue notices of clearance or rejection, or prepare recommendations thereon; participate in the survey of industrial plants being considered for Government contracts to determine whether the facilities are equipped properly from a security standpoint to safeguard classified defense information and material, and make recommendations regarding custody and protection measures; and to provide technical advice and assistance to contractor's security officials in obtaining necessary facts and information. They direct or conduct periodic security surveys and inspections of contractor facilities to insure compliance with security requirements and to advise management of deficiencies and corrective action necessary to meet security requirements.

(3) *Security Classification Specialists or Officers* develop and direct programs concerned with classifying, reclassifying, and declassifying defense information requiring protection in the interest of national defense, and with controlling the dissemination of such information.

(4) *Foreign Exchange Security Specialists or Officers* direct or operate programs of exchange of classified defense information in accordance with the National Disclosure Policy, and also implement directives pertinent to that Policy.

(5) *Visit Control Security Specialists or Officers* develop and operate programs to control the dissemination of classified defense information to visitors to governmental or contractor facilities.

(6) *Internal Security Specialists or Officers* develop, adapt, or maintain in agencies or installations programs for internal security including systems for classified document control and accountability, storage of classified defense

materials, personnel clearance procedures, internal security inspections, personnel security training and indoctrination, investigation of security violations or unauthorized disclosure of defense information, and similar systems for safeguarding the internal security of the agency or installation.

(7) *Physical Security Specialists or Officers* develop and direct programs concerned with setting up and maintaining physical security systems (the physical aids, repositories, and barriers, and the personnel responsible for operating and maintaining such aids, repositories, and barriers) for protecting classified defense documents, materials, and activities from sabotage, espionage, theft, destruction by fire, and similar hazards. Many positions include both the duties described above for Physical Security Specialists or Officers and also the work described in paragraph (6) above, Internal Security Specialists or Officers; such positions are then titled Security Specialist or Officer (General).

(8) *Security Specialists or Officers (General)* make determinations and perform work involving a combination of the personnel security and industrial security duties, responsibilities, and programs described in paragraphs (1) through (7) above.

II. General Requirements

Applicants for all positions must possess, unquestionably, certain personal qualities considered essential to the effective performance of the duties of these positions, including:

An established reputation for integrity, reliability, trustworthiness, impartiality, and good judgment.

Discretion.

Good morals, personal habits, and associations.

Loyalty to the United States and to its democratic institutions.

Ability to work successfully with employees, officials, and others within and outside the organization.

III. Experience, Training and Other Requirements

Except for the substitutions provided for below, applicants for grade GS–5 must have had 3 years of general experience. Applicants for grades GS–7 through GS–15 must have had 3 years of general experience and, *in addition*, they must have had appropriate specialized experience in the amount shown in the following table:

Grade	General experience (years)	Appropriate specialized experience (years)	Total (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11/15	3	3	6

General experience—all positions

This is progressively responsible experience gained in analytical, decision making, or administrative work and activities. Following are examples of some, but not all, types of work which *may* provide such experience:

(1) Investigative work with any of the various intelligence and investigative branches of the civil or military service; or in criminal investigations with a Federal, State, county, or municipal organization or agency; or in special investigations of important cases for practicing attorneys.

(2) Direction of investigations of the nature indicated in item (1) next above.

(3) Legal work which required substantial public contacts.

(4) Technical or professional work in any field of personnel management.

(5) Inspection of personnel or of similar and equivalent technical operations and programs.

(6) Industrial production management, planning, engineering, or analysis, requiring a broad knowledge of industrial organization and manufacturing processes.

(7) Corporate law practice requiring a broad knowledge of corporate structure and/or manufacturing processes.

(8) Contract administration work.

(9) Industrial cost accounting, business analysis, or other work which has furnished a thorough knowledge of industrial processes and techniques.

(10) Inspection work involved in the development of measures designed to prevent sabotage, accidents, fire, and theft in industrial and commercial establishments.

(11) Analysis and evaluation of reports of investigations, or of survey and inspection reports, or reports on other complex matters, containing extensive and frequently conflicting testimony, information and other evidence, and preparation of decisions, conclusions, or recommendations for action.

Specialized experience

This is experience which is directly related to the specialized work to be performed. Typical examples of qualifying work are:

Personnel Security Specialist or Officer

(1) Work of the type described in paragraph (1) under DESCRIPTION OF WORK, above; or

(2) Administration or performance of work in the development or execution of local or national programs designed primarily to promote national security insofar as persons employed are concerned.

Industrial Security Specialist or Officer

(1) Work of the type described in paragraphs (2), (6), or (7) under DESCRIPTION OF WORK, above; or

(2) Administering, directing, or inspecting industrial security programs and systems concerned with the protection and safeguarding of classified defense material, operations, or processes. Similar experience gained while participating in investigative or intelligence functions will also be accepted; or

(3) Planning, administering, and directing security or law enforcement agencies or related information collecting organizations which includes work requiring a thorough knowledge of industrial security programs; or as a security specialist with responsibility for determining the ability of industrial facilities to protect classified defense information and materials; or

(4) Developing policies, procedures, regulations, and directives to establish standards and criteria necessary to effect internal security measures, or to prevent violation of security measures; or

(5) Intelligence and counter-intelligence work involving internal or external security, and/or counter-subversive activities, when analysis and evaluation responsibilities and functions are included, and positive corrective or preventive action is taken or recommended.

Security Classification Specialist or Officer

Foreign Exchange Security Specialist or Officer

Visit Control Security Specialist or Officer

(1) Work of the type described in paragraphs (3), (4), or (5) under DESCRIPTION OF WORK, above, as appropriate; or

(2) Any of the specialized experience described above for positions of *Industrial Security Specialist or Officer*, paragraphs (1) through (5).

Internal Security Specialist or Officer

Physical Security Specialist or Officer

(1) Work of the type described in paragraphs (6) or (7) under DESCRIPTION OF WORK, above; or

(2) Any of the specialized experience described above for positions of *Industrial Security Specialist or Officer*, paragraphs (1) through (5); or

(3) Planning the structures and characteristics of physical facilities (not necessarily industrial) with a view to security; or

(4) Inspection of such facilities to determine the degree of security maintained in relation to the degree required; or

(5) Directing operations and maintenance of physical security systems.

Security Specialist or Officer (General)

(1) Experience, of any of the types described under *Specialized Experience*, which is appropriate for the duties of the position to be filled. When both personnel and industrial security work constitute sufficiently important aspects of the position to be filled, at least 6 months of the required specialized experience may be required in each of these two specialities.

Examples of nonqualifying experience

1. Experience as building guard, prison guard, night watchman, and any other related positions.

2. Experience in the investigation of insurance damage claims or in the financial standing of individuals or firms for credit associations or collection agencies.

3. Experience as a social worker, or as a parole or probation officer.

Special requirements for grades GS–9 and above—all positions

In addition to the general and specialized experience and education specified below, or included therein, applicants for all positions in grades GS–9 through GS–15 must have had experience that shows clearly and significantly:

1. (a) A knowledge and understanding of the current internal security problems, *AND*

   (b) A knowledge of subversive organizations and their methods of operation; or a familiarity with the various sources of information regarding such organizations and their activities and agents.

This requirement can be met by a minimum of 1 year of experience of a kind that has provided these knowledges and understanding. Since the degree of thoroughness of these knowledges to be required will depend upon the grade of the position for which the applicant is being considered, the experience which provided these knowledges must have been at the next or second lower grade level, as specified below in the paragraphs headed *Quality of Experience.*

Administrative experience—Required for all specializations, as appropriate.

For positions which include responsibility for the administration of security programs, in either a staff or a line capacity, applicants must have had, dependent upon the degree and nature of such responsibility, experience which has demonstrated the ability to:

Plan, direct, and coordinate difficult and complex programs or projects; or

Formulate and develop, or assist in a major role in the development of policies, procedures, methods and regulations for the control of important programs or projects.

This experience may have been acquired concurrently with or in addition to the other required experience. This experience need not have been acquired in the field of security administration. However, for any given grade, the administrative experience must have been at a level at least comparable to that of the second lower grade in the Federal service.

Quality of experience

Eligibility in any grade will be based upon a clear showing that the applicant has the personal qualities and experience of the scope and quality sufficient to enable him to perform satisfactorily complex technical or administrative assignments commensurate with the duties and responsibilities of the particular position for which he is being considered.

Specifically, for eligibility at grades GS–7 through 11 at least 6 months of the required specialized experience must have been at the level of difficulty comparable to that of the next lower grade, or at least 1 year must have been comparable to the second lower grade in the Federal service. At GS–12 and above, at least 1 year of the required specialized experience must have been at a level of difficulty comparable to the next lower grade in the Federal service. For grade GS–5, these quality level requirements will apply to general experience. For grades GS–9 and above, this quality level requirement must include the experience which provided the knowledges required in the paragraphs above headed *Special Requirements.*

IV. Substitution of Education

1. For a maximum of 3 years of general experience: Study successfully completed in an accredited college or university (or in a nonaccredited institution as described below) may be substituted for general experience at the rate of 1 year of study for 9 months of experience, provided such study includes an average of at least 6 semester hour credits (or equivalent) a

year in appropriate subjects as follows: security administration, business or commercial law, business administration, industrial security administration, public administration, American or world history, government, personnel administration, architecture (industrial buildings, laboratory), engineering, industrial management, accounting.

Thirty semester hour credits will be considered as 1 year of study. (Four years of such study, or completion of all requirements for a bachelor's degree, qualifies for grade GS–5.)

2. Full-time* graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For 1 year of specialized experience.*—One full academic year of graduate education in one of the following: security administration, public administration, political science, American or world history, government, personnel administration, business administration, industrial security administration, architecture (industrial buildings, laboratory), engineering, industrial management, accounting, or other directly related fields. (This amount and kind of education meets all the requirements for grade GS–7.)

b. *For 2 years of specialized experience.*—Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education, which is in one of the fields described in paragraph a above. (This amount and kind of education meets all the requirements for grade GS–9.)

3. The Superior Academic Achievement Standard in section III of part II, Instructions to Users, of this handbook, is applicable at grade GS–7.

4. Completion of a total of at least 6 years of pre-legal and legal education which meets all the requirements for an LL.B. or J.D. degree will provide eligibility in full at grade GS–9.

Work in Nonaccredited Institutions.—The successful completion of college work in nonaccredited institutions will be accepted on the same basis as indicated for accredited colleges, provided that such institutions give instructions of definitely collegiate level and that the State university of the State in which the institution is located accepts the courses and gives advanced credit for them. (In those States where there is no State university the evaluation and acceptance of college credits as made by the State department of education will be accepted.)

Restrictions on Educational Substitution.—When education is combined with experience in order to meet length of experience required for any given grade, the applicant must have had the quality level of experience required for that grade. *Except* when education is substituted in full for all experience requirements, no substitution may be made for any experience required to be at a level of difficulty and responsibility comparable to that of the next or second lower grade in the Federal service.

No substitution of education may be made for the required experience at GS–11 and above which shows clearly a knowledge and understanding of the national internal security problem and of subversive organizations.

V. Supervisory Positions

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

VI. Written Test

A written test is required for grades GS–5 and GS–7. The test should be waived for all in-service placement actions but not for appointments outside the register.

VII. Physical Requirements

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

* Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.

FIRE PROTECTION AND PREVENTION SERIES*

Firefighter (Appropriate Specializations) GS-3/5

Supervisory Firefighter (Appropriate Specializations) GS-6/10

Fire Communications Operator GS-4/7

Fire Protection Inspector GS-5/9

Fire Protection Specialist GS-5/13

Fire Chief GS-6/12

DESCRIPTION OF WORK

Firefighter (Structural).—Combats fires involving structures (including ships and industrial plants) and their contents except those characteristic of the Airfield specialization; rescues persons endangered by structural fires; drives motorized firefighting vehicles and operates pumping and ladder equipment.

Firefighter (Airfield).—Combats fires resulting from aircraft crashes and other operational accidents or from the storage and/or handling of large quantities of special fuels and propellants related to the operation of aircraft; rescues crew and/or passengers from crashed or burning aircraft; drives motorized equipment.

Firefighter.—Includes the performance of work at the same grade level in both structural and airfield firefighting, or firefighting work for which neither of the specializations is appropriate.

Fire Communications Operator.—Operates telegraph, telephone, or radio equipment to receive and transmit alarm and other messages in text or code, when the work requires, in addition to knowledges of communications operations, knowledges of firefighting techniques, the location and availability of apparatus, the kind of apparatus and equipment needed for the emergency at hand, the fire stations and officials to be notified, and similar knowledges required for the expeditious and effective dispatching of firefighting personnel and apparatus.

Fire Protection Inspector.—Investigates, detects, and initiates action to eliminate fire hazards. Also reviews construction projects for adherence to fire protection and prevention criteria; and gives lectures and conducts training classes in fire prevention.

Fire Protection Specialist.—(1) Develops plans, procedures and standards for firefighting and fire prevention programs, performing technical administrative staff functions related to the organization, training, equipment, maintenance, operations, etc., of firefighting units, typically at the headquarters level (frequently given the organizational title "Fire Marshal"); or (2) provides full-time staff support in one phase of an operating fire protection and prevention program at an installation.

Fire Chief.—Responsible for the management of a program of fire prevention and fire protection; leads and directs firefighters in suppression of fires and in saving lives and property; instructs personnel in modern firefighting and fire prevention methods; initiates complete periodic and special inspections; makes reports and recommendations regarding the elimination of fire hazards; and is responsible for the overall supervision and management of a fire department.

EXPERIENCE AND TRAINING

General experience

General experience is any work experience or military service that demonstrates the ability to follow directions and to read, understand, and retain a variety of instructions, regulations, and procedures and that otherwise demonstrates the ability to perform or learn to perform, the duties of the position.

One year of general experience is required for all positions in this occupation and is fully qualifying for all positions of Firefighter, GS-3.

Specialized experience of any type may be substituted for general experience on a month-for-month basis.

Specialized experience

Applicants must have the kinds and amounts of specialized experience shown in the following tables:

*This standard supersedes the standard for this series that was issued May 1973.

	→All Specializations	Firefighter (structural)	Firefighter (airfield) or combined		Fire protection inspector*		Fire protection specialist*		Fire communication operator*		→All specializations
	General	Firefighting	Firefighting	Airfield	Firefighting	Inspection	Firefighting	Specialist	Firefighting	Communications operations	Total
GS-3	1										1
GS-4	1	1	1						1		2
GS-5	1	2	1	1	2		2		1	1	3
GS-6	1	2½	1	1½	2	½	2	½	1	1½	3½
GS-7	1	(**)	(**)	(**)	2	1	2	1	1	2	4
GS-8	1				2	1½	2	1½	(**)	(**)	4½
GS-9	1				(**)	(**)	2	2			5
GS-10	1						2	2½			5½
GS-11 and above	1						2	3			6

*For Fire Protection Inspector, Fire Protection Specialist, or Fire Communications Operator positions, excess inspection, protection specialist, or communications operation experience may be substituted for the required firefighting experience within that specialization only.

**For supervisory and those rare non-supervisory positions at these and higher levels, the pattern of experience should be extended.

Firefighting experience is experience as a hoseman, ladderman, hydrantman, or rescueman in the control and extinguishment of fires as an active and regular member of an organized fire department using motorized equipment; or in a military or industrial establishment or a comparable plant or institution using motorized equipment. To be creditable, volunteer experience must have included regular attendance at regularly scheduled meetings held for the purpose of training and instruction and must also have included regular and actual participation in fighting fires.

Airfield experience. Experience gained in combating fires resulting from aircraft crashes or other accidents peculiar to airfield operations; rescuing crew and passengers from crashed and/or burning aircraft.

Fire Protection Inspection experience. Experience gained in inspection for and the detection, control, and elimination of fire hazards; applying fire regulations and fire codes; writing descriptions of violations and corrective recommendations; and speaking to groups on fire prevention.

Fire Protection Specialist experience. Experience gained in developing firefighting and fire prevention plans, procedures, and standards, and in preparing fire safety regulations or training materials for firefighting or fire prevention personnel.

Supervisory experience. Experience as an officer in an organized fire department; or in a supervisory capacity in connection with firefighting, fire protection or fire prevention.

For supervisory positions, the qualification standard for Supervisory Positions in the General Schedule Occupations in Part III of Handbook X-118 should be used in conjunction with the requirements in this standard.

Quality of experience

For positions at any grade the amount of experience will not in itself be accepted as proof of qualification. The applicant's record of experience and training must show the ability to perform the duties of the position.

For eligibility at each grade through GS-11, applicants must have had at least six months of experience comparable in difficulty and responsibility to the next lower grade in the Federal service, or one year comparable to the sec-

ond lower grade. For eligibility at GS–12 and above, applicants must have had at least one year of experience comparable in difficulty and responsibility to the next lower grade in the Federal service. (See Guide for Evaluation of Candidates section of this standard for an exception to this requirement for inservice placement in Fire Chief positions.)

Substitution of education for experience

Successfully completed education and training of acceptable type and quality may be substituted for experience requirements as specified below:

(1) Successful completion of a full 4-year high school curriculum may be substituted for one year of general experience.

(2) Successful completion of a 2-year associate degree program in an accredited community college, junior college, or college or university in Fire Training, Fire Seience or other appropriate field of study is fully qualifying for GS–4 in any specialization.

(3) Appropriate education or training, e.g., training acquired while serving in the Armed Forces or in manpower development programs, will receive appropriate credit depending upon its applicability and extent.

Motor Vehicle Operator Qualifications

For those positions requiring employees to drive motorized firefighting equipment, candidates must be able to present at the time of appointment an automobile driver's license currently valid in the State in which they live or are principally employed. Also, applicants for these positions will be required to pass a practical road test. Applicants whose traffic records show that they are not safe drivers will be disqualified.

Mechanical Equipment Operator Qualifications

For those positions requiring the operation of . . . specialized firefighting pumping equipment and mounted pressurized systems and dispensing devices, applicants may also be required to demonstrate the ability, before appointment, to operate the specific equipment to which they will be assigned, or similar or related types of hydraulic equipment.

For inservice placement actions, a test is *not* required and, therefore, may *not* be used on a pass-fail basis. In addition, a test may *not* be used in evaluating or ranking eligible employees unless the test is approved for this purpose by the Office of Personnel Management (see section A–3, appendix A, *FPM Supplement 335–1*).

Performance test

Because of the arduous physical demands of these positions, candidates for initial entry into the occupation in all positions, except those of Fire Protection Inspector and Fire Protection Specialist, will be required to qualify in a stamina and agility test [1] at the time they are considered for appointment. This performance test may be waived in inservice placement actions provided there is other acceptable evidence of the applicants' ability to perform arduous duties.

BASIS OF RATING

Ratings for applicants for all grades will be based on an evaluation of experience, education, and training appropriate to the position for which considered.

GUIDE FOR EVALUATION OF CANDIDATES

Guidelines for appraising employees' qualifications and promotion potential are discussed in *FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement.*

[1] The stamina and agility test is intended for use only for initial entry into the Federal occupation at all grades where no verifiable evidence exists of applicants abilities to perform arduous duties. It is not appropriate when there are more direct measures of ability to perform the duties of the position (e.g., actual on-the-job performance, periodic physical examination) and, therefore, may not be used in these cases unless approved by the Office of Personnel Management.

In addition, the evaluation of the kind and level of experience should be based on the following criteria:

1. The quality level of experience is determined by the difficulty, importance and scope of the duties performed, and the extent to which this experience tends to show that the applicant possesses the required knowledge and ability for the performance of the duties.
2. Much useful information for evaluating experience is found in the position classification standard for the Fire Protection and Prevention Series, GS–081. For example, study of the classification standard leads to the following:
   (a) Generally, for all options, experience which is most like the work described in the same specialization as the position involved should be evaluated at higher quality levels than experience which is more like the work described in other specializations.
   (b) Generally, for all options, experience which is most like the work described in the higher grade levels of the classification standard should be evaluated at higher quality levels than is experience which is most like the lower grade level duties, provided the length and nature of the experience is indicative of probable continuing ability to perform successfully on the job to be filled.
   (c) Generally, experience in a large firefighting organization where high frequency of active participation in a variety of firefighting situations and use of various kinds of equipment should be credited at higher quality levels than is experience in a firefighting organization where there is a low frequency of active participation in a variety of firefighting situations and limited use of various types of equipment.
   (d) Because of the need for vigorous, agile firefighters, additional credit normally should not be given for excess experience except where the additional experience was of a kind and quality which increased the applicant's ability to perform the duties of the position to be filled.
   (e) Ordinarily, additional credit may be given for recent experience (not already credited) which included a comprehensive training course in current firefighting or fire prevention practices and techniques.
   (f) Ordinarily, a lower quality level should be assigned experience which is outdated (e.g., more-than five years) than for experience which provided knowledge of current fire protection and prevention methods, equipment, and techniques.

In evaluating each applicant's experience and training, attention should be given to the following factors (as appropriate):

—Knowledge of basic firefighting theory and techniques;
—Ability to follow instructions;
—Ability to work with others;
—Ability to work calmly in stressful situations;
—Knowledge of specialized firefighting techniques (e.g., aircraft crash-rescue, shipboard firefighting, handling radioactive materials, etc.);
—Ability to drive and operate the specialized equipment on motorized firefighting vehicles;
—Ability to prepare reports;
—Knowledge of the operation of fire communications equipment;
—Ability to recognize fire hazards and determine corrective measures;
—Ability to write clearly and concisely.

→An irregular (non-sequential) grade structure may make it difficult to determine normal line of promotion when filling supervisory positions by inservice placement actions. When such

questions arise, refer to FPM chapter 300, subchapter 6-2 for a complete discussion of normal line of promotion.←

For inservice placement in Fire Chief positions at grades GS-12 and above, one year of experience as a Supervisory Fire Fighter (Assistant Chief-Shift Supervisor assignment as described in the classification standard for this series) in the second lower grade in the Federal service will satisfy the Quality of Experience requirement described above, provided a review of the candidate's total experience and performance demonstrates:

1. Definite potential for successful performance of the work; and

2. Possession of the necessary knowledges, skills, and abilities, such as (a) an extensive knowledge of current fire protection and prevention theories and practices; (b) ability to develop and gain acceptance of fire protection and prevention policies and programs; and (c) ability and judgment required to make decisions, sometimes under stress, that influence the effectiveness of the fire protection and prevention programs.

In addition, see the qualification standard for Supervisory Positions in General Schedule Occupations in part III of this handbook.

PHYSICAL REQUIREMENTS

A. *General.*

Applicants must be physically able to perform efficiently the duties of the positions for which they are considered. Applicants must possess emotional and mental stability. Any condition which would cause the applicant to be a hazard to himself or others will disqualify for appointment.

Employees in positions directly involving firefighting duties or other duties involving arduous physical exertion (or for which there is a reasonable expectancy of such a requirement) may be subject to periodic (e.g., annual) medical examinations following appointment to determine fitness for continued performance of the duties of the position.

B. *Firefighter and Supervisory Firefighter (All Specializations).*

The duties of these positions require arduous physical exertion under rigorous and unusual conditions. Persons appointed will be subject to extreme physical danger and to irregular and protracted hours of work. Any structural or functional limitation or defect which tends to interfere materially with a high degree of physical activity will disqualify.

Except where there is clear medical evidence of complete recovery, current receipt of disability retirement compensation from any source, or of a Veterans Administration nonservice pension, for any physical condition which is disqualifying in the physical requirement statement will be considered prima facie evidence of failure to meet the physical standards for these positions.

Weight: Weight must be in proportion to height.

Eyes: Distant vision without glasses must test at least 20/70 (Snellen), in one eye and 20/100 (Snellen), in the other. Distant vision must be corrected to at least 20/30 (Snellen), in one eye and to at least 20/70 (Snellen), in the other. Near vision, glasses permitted, must be acute for reading without strain printed material the size of typewritten characters. Applicants must be able to read any 15 of the 20 plates (demonstration plates excluded), American Optical Company, Pseudo-Isochromatic Test plates (1940 issue), or successfully pass the Edridge-Green lantern test. Applicants must be free from acute or chronic eye disease.

Ears: Applicants must be able to hear the normal spoken voice at 20 feet, each ear, and the whispered voice at 15 feet, each ear. Use of a hearing aid is not permitted. Applicants must be free from acute or chronic disease of the external, middle, or internal ear.

Nose, Mouth, and Throat: Applicants must be free from conditions which interfere with distinct speech or with free breathing required in use of breathing apparatuses. Serious sinus disease may be disqualifying.

Teeth: Applicants must be free from gross dental infection, caries, pyorrhea, pus pockets around roots, and Vincent's disease. They must have sufficient teeth, natural or prosthetic, to insure proper incision and mastication of food.

Lungs: The following conditions may be causes for rejection of an applicant: A history of pulmonary tuberculosis with more than moderate involvement and arrested or healed for a period of less than one year; acute or chronic pleurisy, bronchitis, or asthma; empyema; pneumothorax; bronchiectasis; or other irremediable conditions of lungs, pleura, or mediastinum. X-rays of the chest will be taken at time of appointment at no expense to applicants.

Heart and Blood Vessels: The following conditions may be causes for rejection: Organic heart disease, whether compensated or not; valvular diseases; murmurs which are not cardiorespiratory in origin; coronary heart disease; cardiac enlargement; angina pectoris; a persistent pulse rate at rest which exceeds 110 or is less than 50; cardiac arrhythmia or irregularity other than sinus arrhythmia; arteriosclerosis beyond that normal for the applicant's age; or a blood pressure reading which exceeds 160, systolic, or 90, diastolic, or which is less than 105, systolic, or 60, diastolic. If the initial blood pressure reading exceeds 160, systolic, or 90, diastolic, serial blood pressure readings will be taken and the average thus obtained will be the value to be considered.

Abdomen: The following conditions may be causes for rejection: Acute or chronic disease of the abdominal viscera; a history of gastric or duodenal ulcer; significant enlargement of the liver or spleen. Hernia, any type, except small umbilical, will be cause for suspension from the register until medical evidence is furnished showing the condition to have been remedied.

Genitourinary: A macroscopic and microscopic examination of the urine will be made at time of examination. The following conditions may disqualify: Acute or chronic genitourinary diseases; diabetes; acute or chronic prostatitis; large or painful varicocele or hydrocele with functional impairment. If there is a history of a venereal infection, satisfactory evidence of adequate treatment must be furnished. A routine blood test for syphilis will be made at time of examination at no expense to applicant.

Spine, Pelvis, Sacroiliac and Lumbo-Sacral Joints: Applicants must have free mobility of spine and pelvic joints. The following conditions may disqualify: Any significant curvature, deformity or malformation of the spine; a history of herniated nucleus pulposus with or without surgery; or spondylelishesis. Applicants with a history of low back pain, sciatica, arthritis, or suggestive pathology may be required to undergo special orthopedic examination, including X-ray study, at their own expense, before further consideration will be given.

Extremities: The following conditions may disqualify: Anomalies in the number, form, proportion, and movements of the extremities which produce significant deformity or which interfere with function. These conditions include ununited fractures and nonreducible dislocations or united fractures and reduced dislocations with incomplete restoration of function; amputation of arm, hand, leg, or foot; loss of any portion of the thumb of either hand; loss of more than the distal phalanx of index or middle finger of either hand; ankylosed joints; varicose veins other than mild in degree; pes cavus; flat foot with symptoms; weak foot; club foot; loss or deformity of great toe or any condition which interferes with function or will prevent efficient performance of duty.

Nervous System: Applicant must possess emotional stability. A history of a serious mental disease may be disqualifying. The following conditions may be causes for rejection: Epilepsy; chronic alcoholism or drug addiction; paralysis or paresis; or muscular atrophies or dystrophies. If, in the opinion of the examining physician, there is any evidence of a nervous or mental disorder requiring special neuropsychiatric examination, the applicant will be required to obtain an examination, at his own

expense, before further consideration will be given.

Skin: Any condition of the skin which interferes with function may disqualify.

Other Defects: Any serious deviation from sound physical condition will be grounds for rejection of an applicant regardless of whether or not the condition is named above. Remediable defects or curable diseases will not exclude a person from examination but proof that such defects have been remedied or the disease cured must be received during the life of the eligible register before persons otherwise qualified may be considered for appointment under civil service rules.

Immunizations: At time of appointment, appointees will be required to undergo tetanus immunization and such other immunizations as may be indicated.

C. *Fire Protection Inspector.*

(*See Part II, Physical Requirements, paragraph 13.*)

D. *Fire Protection Specialist, and Supervisory Fire Protection Specialist.*

(*See Part II, Physical Requirements, paragraph 3.*)

E. *Fire Communications Operator.*

(*See Part II, Physical Requirements, paragraph 3.*)

F. *Fire Chief.*

The duties of these positions require arduous physical exertion under rigorous and unusual conditions. Persons appointed will be subject to extreme physical danger and to irregular and protracted hours of work. Any structural or functional limitation or defect which tends to interfere materially with a high degree of physical activity will disqualify.

Vision: Distant vision, without glasses, must test at least 20/70 (Snellen), in one eye, and 20/100 (Snellen), in the other. Distant vision must be corrected to at least 20/30 (Snellen), in one eye, and 20/70 (Snellen), in the other. Near vision, glasses permitted, must be acute for reading without strain printed material the size of typewritten characters. Applicants must be able to distinguish basic colors. Acute or chronic eye disease will disqualify.

Nose, Mouth, Throat: Applicants must be free from conditions which interfere with distinct speech or with free breathing.

Lungs: The following conditions may be causes for rejection: Pulmonary tuberculosis with more than moderate involvement and arrested or healed for a period of less than one year; acute or chronic pleurisy; empyema; pneumothorax; acute or chronic bronchitis; asthma; bronchiectasis; or other irremediable conditions of lungs, pleura or mediastinum. All X-ray of the chest will be taken at the time of appointment at no expense to the applicant.

Heart and Blood Vessels: The following conditions may be causes for rejection: Organic heart disease; valvular diseases; murmurs which are not cardio-respiratory in origin; cardiac enlargement; angina pectoris; a pulse rate of 120 or over, or 50 or under when persistent in a recumbent position; significant cardiac arryhthmia and irregularity; arteriosclerosis beyond that normal for applicant's age; or hypertension greater than 160, systolic, or 90, diastolic, or less than 105, systolic, or 60, diastolic.

Abdomen: Presence or history of gastric or duodenal ulcer may be cause for suspension from the eligible register until medical evidence is obtained that the condition has been healed. Hernia, any variety except small umbilical, will be cause for suspension from the eligible register until medical evidence is obtained that the condition has been remedied.

Genitourinary: Urinalysis will be made at the time of appointment. The following conditions may disqualify: Acute or chronic genitourinary disease; diabetes; acute or chronic prostatitis; large or painful varicocele or hydrocele.

Nervous System: Applicants must possess emotional stability. A history of a serious mental disease may be disqualifying. The following conditions may also disqualify: Epilepsy; chronic alcoholism or drug addiction; paralysis or paresis; psychoneurosis, such as neurasthenia, muscular atrophies, or dystrophies; stuttering or stammering. If, in the opinion of the examining physician at the time of appointment,

there is any evidence of a nervous or mental disorder requiring special neuropsychiatric examination the applicant will be required to obtain an examination, at his own expense, before further consideration will be given.

Any serious deviation from sound physical condition will be grounds for rejection regardless of whether or not the condition is named above. Remediable defects or curable disease will not exclude a person from examination but proof that such defects have been remedied or the disease cured must be received before persons otherwise qualified may be considered for appointment under civil service rules.

A blood test for syphilis will be made at time of appointment.

Immunizations: At the time of appointment, appointees will be required to undergo tetanus immunization and such other immunizations as may be indicated.

Police Officer GS–2/5
Detective GS–6/7
Supervisory Police Officer GS–5/9
Supervisory Detective GS–7/8

DESCRIPTION OF WORK

Police perform or supervise performance of law enforcement work involved in the protection of life, property, and the rights of individual citizens. They enforce Federal, State, county, and municipal statutes, laws, and ordinances, and agency rules and regulations. They preserve the peace; prevent, detect, and investigate accidents and crimes; arrest violators; and aid citizens in emergency situations.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

All candidates for positions in grade GS–2 must take a written test to demonstrate their abilities to understand the written word, and to follow oral directions.

Candidates for positions at GS–3 and above are required to show experience of the length and nature described below:

Minimum experience and training

Grade	Total experience required (years)
GS–2	None
GS–3	1
GS–4	2
GS–5	3
GS–6	4
GS–7 and above	5

Acceptable experience

For positions at GS–3, acceptable experience is that which clearly demonstrates that the candidate possesses a knowledge of general law enforcement methods and techniques that could be applied in performing police functions. This experience must have included protecting property, equipment, or materials; and person-to-person relationships in enforcing various rules and regulations. This experience may be obtained in positions such as:

An armed guard involved in the protection of property, materials, equipment, data, or information, requiring frequent personal contact with the public;

A private detective or police officer responsible for performing routine investigational duties such as shadowing or checking on the activities of individuals and checking on the security of private property.

For positions at GS–4 and above, acceptable experience is that which has given the candidate a broad knowledge of police operations, practices, and techniques. The experience must have included making arrests, protecting life and property, maintaining law and order, investigating accidents, preventing crime, and preserving the peace. Experience of this type normally may be acquired through regular, active service as a member of a Federal, State, county, municipal, or local police force or similar organization; or through service as a military police officer in the Armed Forces or Coast Guard.

Quality and level of experience

For nonsupervisory positions, at least 6 months of the required experience must have been at a level of difficulty and responsibility comparable to that of the next lower grade, or at least 1 year of required experience must have been at a level of difficulty and responsibility comparable to that of the second lower grade in the Federal service.

Supervisory experience

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook.

Nonqualifying experience

Experience as a prison or jail guard, night watchman, or other position which did not provide knowledges and skills in general law enforcement methods and techniques that could be applied in the performance of police functions, will not be considered as acceptable experience.

Substitutions

(1) Successful completion of police recruit training in a large civilian police force,

a police academy, or police school, may be substituted for the experience requirements at GS–3.

(2) Successful completion of a Reserve-Police training course which included a minimum of 36 hours of actual lecture or training in police department procedures and methods, and local laws and regulations; and which led to the award of a certificate of proficiency or issuance of a badge, may be substituted for a maximum of 6 months of the experience →required for GS–3←.

(3) Successful completion of 1 year of study in a resident school above high school level may be substituted in full for the GS–3 requirements, provided each semester of study included 3 semester hours, or the equivalent, in one or more of the following subjects: police administration, police law and evidence, police investigation, criminology, law enforcement, general law, or similar subjects pertinent to police work.

(4) Successful completion of 2 years of study in a resident school above high school level may be substituted in full for the GS–4 requirements, provided each semester of study included 3 semester hours, or the equivalent, in one or more of the following subjects: police administration, police law and evidence, police investigation, criminology, law enforcement, general law, or similar subjects pertinent to police work.

(5) Successful completion of a full 4-year course of study required for a B.S. degree in Police Science from a resident school above high school level may be substituted in full for the GS–5 requirements.

MOTOR VEHICLE OPERATOR QUALIFICATIONS

For positions requiring the operation of a Government-owned motor vehicle, candidates must:

—Pass a practical road test, driving the appropriate type vehicle supplied by the agency to which the candidate is provisionally certified;

—Possess a valid State or territory motor vehicle operator's license or obtain one within 30 days after entry on duty;

—Have a satisfactory safe driving record.

BASIS OF RATING

Competitors for all positions will be rated on a scale of 100. The basis of rating will be:

For GS–2: Competitors will be rated only on the basis of the written test. They will be rated on a scale of 100. A rating of at least 70 must be obtained on the test as a whole.

For GS–3 and above: An evaluation of experience and training. Candidates must present evidence of ability to discharge the duties of the position. Information for evaluating experience and training will be taken from the application form and any additional information obtained through confidential inquiries to supervisors, teachers, and other references.

PERSONAL QUALITIES

Candidates, in addition to other qualifications, must demonstrate that they possess traits and characteristics which are important to success in police work. Among these are: alertness, ability to work in stress situations, ability in oral expression, tact, integrity, capacity for effective public relations, practical intelligence, and good judgment.

AGE LIMITS

Persons appointed to police positions must be at least 21 years of age. This requirement may be waived only for veterans. Persons between the ages of 20 and 21 may file applications for examinations. Such persons will be examined but only veterans may enter on duty before attaining the age of 21 years.

PHYSICAL REQUIREMENTS

Applicants must be physically able to perform efficiently the duties of the position, which are described elsewhere in this standard.

→For most positions, applicants must have binocular vision correctible to 20/20 (Snellen). Uncorrected vision must test at least 20/70 (Snellen) in each eye. Near vision corrected or uncorrected must be sufficient to read Yaeger Type 2 at 14 inches. However, there may be some positions suitable for persons with good vision in one eye only.← Ability to distinguish basic colors is essential. Ability to hear the conversational voice, without the use of a hearing aid, is required. Persons with an amputation of arm, hand, leg, or foot should not apply. Applicants must possess emotional and mental stability. Any physical condition which would cause the applicant to be a hazard to himself or to others will disqualify for appointment.

GUARD SERIES*

Guard GS-2/5
Guard Supervisor GS-4/9

NOTE: *Competition for these positions is restricted by law to persons entitled to veterans' preference.*

DESCRIPTION OF WORK

Guards patrol Government buildings and property to prevent theft, fire, damage, accident, trespass, sabotage, or espionage; protect lives; control traffic; and perform similar duties. Guards exercise protective custody over patients and inmates in psychiatric hospitals and similar institutions, and over aliens subject to deportation proceedings.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

All candidates for positions in grade GS-2 must take a written test to demonstrate their abilities to understand the written word and to follow oral directions.

Candidates for positions at GS-2 and above are required to show experience of the length and nature described below:

Minimum experience and training

Grade	Total experience required (years)
GS-2	None
GS-3	1
GS-4	2
GS-5	3
GS-6	4
GS-7 and above	5

Acceptable experience is service in the Armed Forces or Coast Guard which involved performance of guard duties on a regular or intermittent basis; or service in a Federal, State, or local government or private protection organization, which involved protecting property against the hazards of fire, theft, damage, accident, or trespass; maintaining law and order; protecting lives; or other duties of a similar nature.

For positions in a hospital setting, successful experience as a Nursing Assistant (Psychiatry) is qualifying, on a month-for-month basis.

Quality and level of experience

For nonsupervisory positions, at least 6 months of the required experience must have been at a level of difficulty and responsibility comparable to that of the next lower grade, or at least 1 year of required experience must have been at a level of difficulty and responsibility comparable to that of the second lower grade in the Federal service.

→*Supervisory positions*

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

BASIS OF RATING

Competitors for GS-2 positions will be rated on the basis of the written test. They will be rated on a scale of 100. A rating of at least 70 must be attained on the test as a whole.

Candidates for all positions at GS-3 and above will be rated on the basis of their experience and training.

SELECTIVE PLACEMENT

Referral to specific positions may be based upon possession of specialized knowledges and skills, to assure that only fully qualified candidates are considered. Specialized knowledges are required in working with patients and inmates in hospitals and with aliens in detention centers.

INSERVICE PLACEMENT ACTIONS

Written test

The written test is not required for inservice placement actions.

GUIDE TO EVALUATING CANDIDATES

In rating candidates for promotion, and in filling specific positions, development of a systematic job analysis is recommended. Certain positions may require specialized knowledges.

All guards are expected to bring to the job

*This standard supersedes the standard for this series which was issued in July 1968.

alertness; tact; integrity; and ability to learn guard rules, regulations, pertinent laws, general and special orders, and administrative procedures relating to protection-security systems. Past performance on the job should indicate the degree to which these knowledges, skills, abilities, and personal traits are possessed by the candidate.

Person-to-person contacts form an important and significant part of the total work of the guard. Ability to communicate effectively is important to continued success.

Skill in the use of firearms is a requirement for some positions.

Specialized knowledges are required for certain positions, as in knowing the behavior characteristics of patients in a psychiatric hospital suffering from mental illness, narcotics addiction, or alcoholism.

MOTOR VEHICLE OPERATOR QUALIFICATIONS

Candidates for positions which require the operation of a Government-owned motor vehicle must:

—Have, or obtain within 30 days after appointment, an automobile driver's license currently valid in the State in which they are domiciled or principally employed;
—Pass a practical road test in driving the appropriate type vehicle before appointment;
—Have a satisfactory safe driving record.

PHYSICAL REQUIREMENTS

The duties of these positions require moderate to arduous physical exertion. Amputations, deformities, or disabilities which prevent satisfactory performance of the duties will disqualify for appointment.

Applicants must have vision correctible to 20/30 (Snellen) in the better eye and must be able to read typewritten material, with or without glasses. The ability to distinguish basic colors is required. Ability to hear the conversational voice, without the use of hearing aid, is required.

The history or presence of a significant psychiatric disorder is disqualifying for guard positions which entail the use of firearms.

The duties of these positions require courteous and tactful contact with the public. Applicants may be required to work under trying conditions during emergency situations for hours without relief. Therefore, emotional and mental stability is essential.

Some positions to be filled from these registers require higher physical ability. Applicants considered for such positions must meet the higher physical requirements. Persons not meeting such requirements may be disqualified for such positions, but their standing on the register and their eligibility for positions requiring a lower physical ability will not be affected thereby.

Persons who are offered appointment must pay their own expenses in reporting for duty. If upon reporting at the place of assignment they are found ineligible because of physical defects, they cannot be appointed and no part of their expenses in returning home can be paid by the Government.

Guide, GS–1 and above

Supervisory Guide, GS–5 and above

DESCRIPTION OF WORK

Guides give interpretative talks, answer questions, conduct groups of visitors in or through an area, site, building, or structure of public interest, and give general or specific information concerning the area or facility and its features. They are assigned to various parks, cave areas, historic sites, large dams, public projects, or similar areas. They personally escort groups of visitors through the area; explain its history, significance, features, functions, programs, and objectives; and describe the exhibits, processes, objects, or other matters of interest displayed or observed during the visit. Guides are responsible for the conduct and safety of groups, the maintenance of proper schedules, and the handling of emergencies that may arise. In addition, guides may perform other duties incidental to the upkeep, operation, and maintenance of an area or facility.

In performing their duties guides are required to: talk to groups in a clear, understandable, and agreeable manner; use good judgment in dealing with people on both an individual and a group basis; be alert in recognizing and handling violations of rules and safety regulations; walk and stand for long periods; and ascend and descend stairs and embankments. For some positions they are also required to operate various mechanical devices such as audio-visual equipment and elevators, apply first aid, sell tickets, make change, and safeguard exhibits.

At higher grade levels, guides communicate: semi-technical, technical, and/or scientific information about the features, history, techniques, programs, or natural or physical phenomena of an area or facility; extensive, specialized knowledge of the area or facility; and a general knowledge of related subject matter field(s) as they present, discuss, and respond to questions concerning the area assigned, prepare interpretative talks, or train other guides and volunteers.

EXPERIENCE, TRAINING AND RELATED REQUIREMENTS

Written test

A written test is not required.

Experience requirements

Candidates must meet the experience requirements specified below. (Successfully completed education of acceptable type, quality, and duration may be substituted for experience.)

Grade	General (years)	Specialized (years)	Total (years)
GS-1	0	0	0
GS-2	½	0	½
GS-3	1	0	1
GS-4		1	1
GS-5		2	2
GS-6		3	3
GS-7		4	4
GS-8 and above		5	5

General experience

General experience is that which has involved:

—group leadership;

—teaching, lecturing, or instructing groups;

—development or acquisition of nontechnical knowledge of the features, history, functions, or programs of any area or facility sufficient to describe and explain them to others;

—public speaking;

—ability to handle money, make change, and deal with others in a pleasant manner;

—learning or performing first aid; or

—receiving and directing visitors, applying a knowledge of the layout and function of areas and facilities.

Specialized experience

Specialized experience is that which involved:

—oral presentation of technical or scientific information to groups;

—acquisition of knowledge of the scientific or technical subject matter necessary to present and discuss the features, functions, history, programs, content, exhibits, etc., of an area of facility;

—experience as a ranger, naturalist, or park guide;

—lecturing before or guiding groups in a large museum or similar natural science or history institution;
—developing and revising technical, historical, or scientific information for oral presentation to groups; or
—training and developing guides, instructors, or volunteers to perform duties such as those mentioned in the preceding examples.

Specialized experience may be substituted for general experience on a month-for-month basis.

Quality of experience

For eligibility at *grade GS–4*, at least 6 months of the required specialized experience must have been comparable in difficulty and responsibility to the GS–3 level in the Federal Service.

For eligibility at *grade GS–5* and above, candidates must have had at least 1 year of specialized experience comparable in level of difficulty and responsibility to the next lower grade level in the Federal Service.

In addition, for positions at GS–7 and above, at least one year of the specialized experience must be directly related to the duties of the specific position to be filled. Placement of guides in positions at GS–7 and above, either through selective certification or noncompetitive action, must be predicated upon: (1) a detailed job analysis of the knowledges, abilities, and skills required for the work; and (2) an itemized matching of the candidate's knowledges, abilities, and skills sufficient to assure satisfactory performance. Acceptable specialized experience must have been characterized by progression in difficulty and responsibility or variety, or must have been supplemented by academic study so that there is sufficient development of the candidate's knowledge and ability. Routine performance of repetitive duties without evidence of such growth and development may be accepted for not more than three months of specialized experience.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must demonstrate conclusively that the candidate possesses the ability to perform the duties of the position.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

GS–2: Graduation from a full four year or senior high school in a curriculum which included two "year long" courses in science, mathematics, and/or public speaking may be substituted in full for the general experience requirements at the GS–2 level.

GS–3: Graduation from a full four year or senior high school in a curriculum which included satisfactory completion of four "year long" (or equivalent) courses in the natural and physical sciences, mathematics, and/or public speaking may be substituted for one year of general experience and meets in full the experience requirements at the GS–3 level.

OR

Successful completion of 1 year of post high school education in an accredited resident institution may be substituted for 1 year of experience, and meets in full the experience requirements at the GS–3 level.

GS–4: Successful completion of 2 years of academic study in a college or university, which included or was supplemented by at least 12 semester hours of course work in American history, science, and/or public speaking may be substituted in full for the 1 year of specialized experience and meets in full the experience requirements at the GS–4 level.

GS–5: Successful completion of 3 or more years of academic study in a college or university that included or was supplemented by at least 18 semester hours of course work in a combination of science, American history, public speaking, and subjects directly related to the position(s) to be filled may be substituted in

full for the 2 year specialized experience requirement at the GS–5 level.

Appropriate education and training other than that outlined above, such as manpower development programs or military training programs, will be granted credit, generally on a month-for-month basis or pro rata, depending on its applicability and extent. The maximum amount of experience for which education of any kind may be subetituted is 2 years.

BASIS OF RATING

Candidates for all positions will be rated on the quality, relatedness, and extent of experience, education, or training in relationship to the knowledge, skills, and abilities in the position(s) to be filled. Ranking will be made on the following basis:

For GS–1: An evaluation of the candidates willingness to do simple procedures, their ability to follow instructions, their ability to work safely, and their willingness to work with groups.

For GS–2 and GS–3: An evaluation of experience, training, and education to determine the degree to which the *general* knowledge, skills and abilities previously described under "General Experience" are possessed.

For GS–4 and above: An evaluation of *specialized* experience and training. Candidates must present evidence of ability to discharge the duties of the position applied for. The information for evaluating experience and training will be taken from the application form, the work sample or interview if one is required, and any additional information which the examining office may wish to obtain through confidential inquiries to supervisors, teachers, and other references. In conducting the evaluation, attention should be given to factors such as: *Assignment history:* type, variety, relative difficulty, progression; *Work Output:* productivity (quantity), acceptability (quality), freedom from error, ability to learn from errors. In addition, see the "Guide for the Evaluation of Candidates" and "Selective and Quality Ranking Factors" in this standard.

SUPERVISORY POSITIONS

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of this handbook in conjunction with this standard.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for beginning level guide positions should have the ability to use simple procedures, the ability to read and understand simple instructions and procedures, and the ability to learn to address and to guide groups.

Guides need to know and to be able to apply, in appropriate measure, practical knowledges and skills such as the following:

1. Knowledge, skill, and ability sufficient to perform duties with little or no direct supervision (except in trainee and group assignments).
2. Knowledge of the history, significance, features, functions, programs, and purpose of an area or facility and its contents, sites, exhibits, natural and cultural features—in the position(s) to be filled; and, knowledge of related general, technical, and scientific information, as appropriate, or subject matter fields related to the area or facility and its contents or features.
3. Skill in orally presenting and discussing with groups, general information, and, at higher grades, technical or scientific information.
4. Skill in executing first aid procedures, e.g., for fainting, minor cuts, and similar minor problems, including knowledge of situations where patients should not be moved or treated until seen by a doctor, nurse, paramedic, or other appropriate person.
5. Skill in meeting and dealing with the public, making change, and giving information and directions in a pleasant manner.
6. Skill in guiding and overseeing groups.

Since many positions in this series are filled through *inservice placement*, the procedures and questions to be asked of candidates should be tailored to the requirements of the specific position and the labor market. The material contained in "Rating for Inservice Placement" section of the *Internal Qualification Guides for Trades and Labor Jobs* will be especially helpful, along with Handbook X118C, Chapter III, Plan for Rating Applicants.

SELECTIVE AND QUALITY RANKING FACTORS

The Guide Series covers a variety of positions some of which require specialized knowledges or a particular combination of knowledges and skills which are essential to individual positions but cannot routinely be expected among candidates who meet the broad requirements common to the occupation at the grade involved. For example, some positions may require a knowledge of specific college level science, history, or technology. While some candidates can be expected to possess this knowledge, others may have established their eligibility on the basis of different or lesser coursework or experience.

Where such requirements are necessary to do the work of the position to be filled, or (as in entry level, developmental, or trainee positions) are necessary to do the work of designated target jobs, agencies are authorized and encouraged to develop selective factors describing the requirements and to use selective certification to fill such positions. This approach is not appropriate when the particular knowledges and skills are to be developed through agency sponsored training or education after employment. When used, documentation should be maintained, such as job analysis data showing the basis for each selective factor. Full provision should be made for recognizing the different ways candidates can meet the requirements.

Agencies may also develop quality ranking factors to assist in determining which candidates are best qualified. These do not affect the basic qualification requirements, but must be directly related to the duties and responsibilities of the position to be filled since they will be used to determine which of the eligible candidates are to be included in the final group from which supervisors and managers will make final selections. Quality ranking factors must distinguish and predict various levels of performance, particularly superior performance.

In determining the extent to which positions require and candidates possess such knowledges, skills, and abilities, a job-element approach may be helpful. Handbook X118C, May 1969, discusses the job element procedures and techniques to be used in obtaining information from applicants and measuring their qualifications. The approaches in that material may be adapted for use for this occupation.

Examples of quality ranking factors are the knowledges, skills, and abilities listed under the preceding "Guide for the Evaluation of Candidates."

Formal study, training, and experience in relevant, specific science, history, technology, public speaking, or any of the areas listed under specialized experience, may be reflected at appropriate levels in quality ranking factors to the extent related to (predictive of) performance of the positions to be filled. For example:

—for guide positions in natural history areas and caves, higher credit values might be appropriate for experience as a ranger naturalist or guide in national or other parks, or forests, caves, monuments, or similar areas.

—for guide positions in historic areas, higher credit values may be appropriate for experience as a ranger historian, historic site guide or park guide in a similar area where similar knowledge was applied.

—for guide positions in caves and other natural history areas, experience in teaching or lecturing in the natural science, archeology, or other technical subjects pertinent to the interpretation of an area, site, series of exhibits or structures, may warrant higher credit values. Similarly, for guide positions in historic areas or exhibits, experience in teaching American (or other pertinent)

history or related technical subjects (e.g., arts and crafts related to the exhibits) may warrant higher credit values.

Additional guidance concerning the evaluation and documentation of selective and quality ranking factors is provided in FPM Chapter 332, Subchapter 4 and Appendix B.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For those positions in which operating a motor vehicle is essential to the efficient performance of the work applicants are required to:

—possess, or obtain within 30 days of employment, a valid State driver's license, and
—qualify, after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency. (See FPM Chapter 930.)

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speeech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an individual's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

GENERAL STUDENT TRAINEE SERIES

Student Trainee (Appropriate Specialty) GS–2/5

This standard is applicable to preprofessional student trainee positions in the following series: General Student Trainee Series, GS–099; Social Science Student Trainee Series, GS–199; Biological Science Student Trainee Series, GS–499; Accounting Student Trainee Series, GS–599; Engineering and Architecture Student Trainee Series, GS–899; Physical Science Student Trainee Series, GS–1399; and Mathematical Science Student Trainee Series, GS–1599.

The duties of these positions include both on-the-job training in a Federal agency and scholastic training at a college or university. Work assignments are planned to prepare the trainee for future professional work.

This standard is not applicable to preprofessional student trainee positions in cooperative work-study programs leading to employment in occupations which the Office of Personnel Management determines to be shortage occupations; these positions are Schedule B positions excepted from the competitive service.

Note: This standard is not to be used for temporary job employment of students during summer vacation periods. Student trainee positions may be filled only by career-conditional appointment from an appropriate student trainee register.

NATURE OF WORK-STUDY TRAINING PROGRAM

The persons appointed to these student trainee positions will participate in special training programs consisting of planned on-the-job training in a Federal establishment and regular scholastic training at an accredited college or university. The two phases of training may be carried on concurrently as a result of the student trainees being employed part time in school attendance, or they may be alternated through employment of the trainees during vacation periods of regular full-time colleges or universities. Both work-training and attendance at the educational institution are essential parts of the duties of the position.

Students will enter the training program at a grade level consistent with the stage of their academic progress. They may be promoted to the various higher trainee grades, without further competitive or written examinations, at such times as they have completed prescribed portions of the combined work and college requirements of the training program. After satisfactorily completing each period of on-the-job training, students will generally be granted leave or furlough to return to college. Upon satisfactory completion of a period of college study, the employing agency may, subject to the existence of suitable positions, (1) return the trainee to his former position and grade, or (2) may promote him, if eligible, to a higher trainee grade, or (3) may reassign him to a nontrainee position for which he is qualified. An appointee whose first period of on-the-job training precedes the beginning of college study must begin his college study within 4 months of the date of his entrance on the job; otherwise, he will be separated from the student trainee position. However, if the trainee's work-study program is interrupted by military service, the above time limitations may be extended.

Upon completion of all the requirements for the bachelor's degree, including the specialized courses specified in the examination announcement for the particular professional position for which the student is being trained, the trainee may be promoted noncompetitively to a professional position in the field for which he was trained.

MINIMUM EDUCATIONAL REQUIREMENTS

Candidates must have been enrolled or accepted for enrollment in an accredited college or university in a curriculum leading to the bachelor's degree; or they must have been graduated from an accredited high school with credits in all courses required for admission to such a college curriculum and they must have the intention of enrolling and beginning their college study within 4 months of the date of entrance on duty in the student trainee positions.

The college study specified must lead to a

bachelor's degree with specialization in or directly related to the field in which they will receive training on the job. The degree of specialization in this field must satisfy on graduation the specific educational requirements in the qualification standard for the corresponding professional positions.

The basic requirements for all student trainee positions is fully qualifying for GS–2.

ADDITIONAL REQUIREMENTS

For Student Trainee, GS–3: One full academic year of study.

For Student Trainee, GS–4: Two full academic years of study.

For Student Trainee, GS–5: (*a*) Upon completion of three-fourths of the total number of periods of study in college required for the bachelor's degree and one period of employment as student trainee GS–4; or (*b*) upon completion of 2½ years of academic study plus 6 months of Student Trainee GS–4 work experience.

A full academic year of study is defined as a period or combination of periods of study at college equal in length to two semesters or three quarters.

College study at an accredited junior college will be accepted if the credits are acceptable in full by a 4-year accredited college toward completion of its own curriculum in the field concerned.

Students enrolled in a full 4-year engineering curriculum that is neither accredited by the Engineers' Council for Professional Development nor equivalent thereto in type, scope, content, and quality may be appointed to student trainee positions in engineering. However, to obtain subsequent eligibility as a professional engineer, such persons will be required to demonstrate the adequacy of their education and experience by obtaining (*a*) a passing score on the Engineer-in-Training Examination administered by the Boards of Engineering Examiners in the various States, District of Columbia, Puerto Rico, Guam, and the Canal Zone.

Students enrolled in a full 4-year accounting curriculum may be appointed to student trainee positions in accounting. To obtain subsequent eligibility as a professional accountant, such persons must have either completed at least 24 semester hours in accounting subjects or must pass a written test in accounting subjects.

BASIS OF RATING

→No written test is required. For positions at all grade levels, both minimum eligibility and ranking determinations are based on the quality, and extent of experience, education, training or other achievements.

AGE LIMITS

Minimum 16 (except when in conflict with local, State, or Federal laws).←

INSERVICE PLACEMENT

By "period of study in college" is meant a semester or quarter of attendance in a regular full-time college curriculum or one of the periods of attendance at college in a cooperative curriculum. A "period of employment" is a season of employment between academic terms of a regular full-time college curriculum, or part-time employment equivalent to 60 days' full-time employment.

Student trainee positions in grade GS–5 may be filled through inservice placement only.

PHYSICAL REQUIREMENTS

→Applicants must be physically and mentally able to safely and efficiently perform the essential functions of the position. Depending upon the essential duties of a specific position, usable vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform. Reasonable accommodation may include, but is not limited to: job modification, provision of assistive devices, and/or job restructuring.←

Social Science Analyst GS–5/15

Social Science Program Specialist GS–9/15

Positions requiring the application of knowledge of a particular behavioral or social science in the performance of work which is specifically classifiable in any other series are not covered by this standard (e.g., economist, psychologist, sociologist).

DESCRIPTION OF WORK

Social Science Analysts advise on, administer, supervise or perform research, analysis or other professional and scientific work in one or any combination of the behavioral or social sciences. The work requires a background of knowledges, skills, and techniques gained from professional training in behavioral or social science.

Social Science Program Specialists develop and improve standards of program operation and standards of service; identify and evaluate policies, procedures, practices, etc., that are efficient and effective in meeting needs promptly and constructively as well as those which weaken program effectiveness; stimulate activity and provide leadership and technical assistance in the development, extension, and improvement of programs and services.

EDUCATION AND EXPERIENCE REQUIREMENTS

Applicants must show that they have had the amount and kind of experience or education (or an equivalent combination) as described below. This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

Grade	General experience (year s)	Specialized experience (years)	Total experience (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11/15	3	3	6

Nature of general experience

This is experience in analysis, research, or other professional work which has provided a knowledge and a fundamental understanding of and the ability to use social science principles, methods, and techniques.

Nature of specialized experience

Specialized experience for *Social Science Analysts* is experience related to the position to be filled in one or more of the behavioral or social sciences. The following factors are to be applied in measuring the applicant's experience in terms of difficulty, importance, and scope of the duties performed:

(a) Breadth and level of knowledge of principles and theories in one or more specific social science fields.

(b) Ability to plan and conduct technical studies in one or more specific social science fields.

(c) Effectiveness in establishing and maintaining good working relationships.

(d) Skill in preparing written technical reports and/or in making oral presentations of technical information.

(e) Ability to plan, supervise, or coordinate the work of others.

(f) Career progression indicating the ability to learn and apply new techniques or adapt to new situations.

(g) Effect of candidates' suggestions on policy and program decisions.

Specialized experience for *Social Science Program Specialists* is experience in administrative, supervisory, consultative, or technical work related to the job to be filled which has provided an understanding of the personal and social implications of problems of human behavior and adjustment. This experience may have been gained in a variety of settings, of which the following are intended as illustrative examples only:

—work concerned with services to specialized groups such as the mentally retarded, juvenile delinquent, children in need of protective care, the blind, etc.;

—undergraduate or graduate college-level teaching or curriculum developed in one or more of the behavioral or social sciences related to the program area of the position for which the applicant is being considered;
—work concerned with manpower development and employment counseling;
—work concerned with developing, evaluating, and advising on agricultural or farm labor programs;
—research work in organizations concerned with the social, psychological, vocational, or economic aspects of programed services;
—work concerned with program planning and development in the area of social welfare, health, and rehabilitation.

Other fields may be included but the experience must have given the applicant a knowledge of the problems of human behavior and adjustment, and must have been of such nature as to enable the applicant to perform successfully the duties typical of the grade level for which he is being considered.

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

A. *Undergraduate education.*—Study successfully completed in an accredited college or university, with specialization in one or more of the behavioral or social sciences appropriate to the position to be filled, may be substituted at the rate of 1 year of education for 9 months of general experience up to a maximum of 3 years of general experience. Thus, 4 years of such study is fully qualifying for GS–5.

B. *Graduate education.*—In addition to the education or experience requirements for GS–5, the following kinds, amounts, and levels of education are qualifying for grades GS–7 and above as shown below.

Graduate education with major study in one or more of the behavioral or social sciences which has provided the applicant with a knowledge of the theories and concepts in the field appropriate for the specific position to be filled is qualifying in accordance with the following table:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria:

Grade:

a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature.
b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level.
c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

a. Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS-7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS-9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.
b. The completion of all requirements for an LL.B. or J.D. degree, or membership in the bar of a State, the District of Columbia, or a territory of the United States, may be substituted for 1 year of specialized experience.
c. Applicants who have completed all requirements for grade GS-5 and have satisfactorily completed 2 years of Peace Corps volunteer or VISTA service may be rated eligible for GS-9 if their experience was progressively responsible and demonstrated the skills and abilities required for effective performance of the duties of the position for which they are being considered.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

QUALITY OF EXPERIENCE AND TRAINING

For all grades the experience and training must have demonstrated the ability to "meet and deal," analyze and organize facts and concepts, and prepare written material. For positions at GS-13 and above, the experience must have included significant responsibility for directing and supervising other social scientists or for rendering technical advice and consultation in the development of solutions to program problems of an especially complex, difficult, or sensitive nature.

The evaluation of the applicant's performance and potentialities will be based upon information acquired through confidential inquiry of his supervisors and others familiar with the nature and quality of his work.

WRITTEN TESTS

An appropriate written test is required for all positions at GS-5 and GS-7. The written test should be waived for in-service placement actions, but not for appointments outside the register.

No written tests are required of applicants at the GS-9 level and above.

BASIS OF RATING

For grades GS-5 and GS-7, applicants will be rated on a combination of their scores on the appropriate written test plus an evaluation of their experience and training.

For grades GS-9 and above, applicants will be rated on the quality and extent of their exper-

ience, education, and training in relationship to the duties of the positions. This includes (1) progressive advancement as shown by applicants' academic records and experience, (2) level, scope and responsibility of applicants' present and past positions, (3) special or unique training, experience, or research in one or more specific social science fields, and (4) publications and recognition in the form of special honors, awards. Such ratings will be based upon applicants' statements in the applications and upon any additional evidence received by the Commission.

Concise but explicit descriptions of course work, in addition to the course title, should be furnished. Applicants should give a clear and complete description of their experience and training and the projects they have worked on that show their possession of the required knowledges and abilities for the position for which they are being considered.

QUALIFICATION INQUIRIES

Reference inquiries, including contacts with applicants' present and former supervisors and associates, may be made to obtain further information concerning applicants' technical and personal qualifications and general suitability for these positions.

SELECTIVE PLACEMENT

All social science positions share the basic requirement for knowledge of social science analysis and/or research techniques. However, because of the scope of social science activity in Government, and the variety of programs in which such positions exist, some positions in this series may require specialized or additional subject-matter knowledges within a specific or a combination of social science fields. These requirements vary significantly from position to position. For example, incumbents of program positions are concerned with social, economic, cultural and other environmental factors and conditions. They also must be able to deal with the changing problems, needs, issues or areas on which such factors or conditions have a bearing (e.g., child growth and development, juvenile delinquency, vocational rehabilitation).

In such cases, consideration may be limited to those candidates whose records show evidence of the required capabilities.

PHYSICAL REQUIREMENTS

Applicants must be physically able to perform efficiently the duties of the position. For most positions good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required for most positions; however, some positions may be suitable for the deaf. There may be a few positions covered by this standard the duties of which can be performed efficiently and safely by the blind or the deaf; therefore, applications will be accepted from individuals who are blind or deaf. In most instances an amputation of arm, hand, leg, or foot will not disqualify an applicant for appointment, although it may be necessary that this condition be compensated by use of satisfactory prosthesis. Applicants must possess emotional and mental stability. Any physical condition which would cause the applicant to be a hazard to himself or to others will disqualify for appointment.

Economist GS–5/15
Financial Economist GS–9/15
Labor Economist GS–9/15
Regional Economist GS–9/15
Industry Economist GS–9/15
International Economist GS–9/15
Agricultural Economist GS–9/15

DESCRIPTION OF WORK

Economists do professional work or provide professional consultation involving: Research into economic phenomena and analysis and interpretation of economic data; the preparation of special or continuing reports on economic facts and activities; and the adapation and use of specialized methods, tools of analysis, and techniques for quantifying, measuring, and understanding economic relationships. Specifically, economists in the positions covered by this series investigate and evaluate information, reports, legislation, etc., for their economic implications or applications. They write economic report for official publication and provide consultant services for Government policymakers or for the public, and they manage, direct, or contribute to a variety of programs whose purpose is to record, evaluate, or influence economic conditions. (For more detailed discussion of type of work performed and for definition of the various options, refer to the classification standard.)

BASIC REQUIREMENTS FOR ALL GRADES

1. Applicants for all grades must have successfully completed the requirements in paragraph A, B, or C below:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's degree which included at least 21 semester hours in economics plus 3 semester hours in statistics, accounting, or calculus (or any course for which calculus is a prerequisite).

B. Courses in an accredited college or university consisting of 21 semester hours in economics and 3 semester hours in statistics, accounting, or calculus; plus additional appropriate experience or education which, when combined with the specified course work, will total 4 years of education and experience and give the applicant a technical and professional knowledge comparable to that which would have been acquired through the successful completion of the 4-year college course described in "A" above.

C. The completion of all the requirements for a graduate degree in economics from an accredited university.

2. Courses acceptable toward meeting the economics course requirement in paragraph A or B must have included at least three of the following: Principles of Economics, Economic Theory, Money and Banking, Public Finance, Labor Economics, International Economics, Business Cycles, Agricultural Economic Policy, Price Theory, National Income Analysis, History of Economic Thought, Economic History.

For some positions, courses in subjects in related fields, which in some schools are accepted as meeting credit requirements for economics majors, may be considered to meet the additional economics course requirement in either paragraph A or B.

The following list of courses of this type is, of course, not complete, but is offered as a guide to the type of course work creditable for meeting the economics requirement for some positions: History, political science, sociology, psychology, law, mathematics, international relations, conservation policy, land utilization. For other positions, certification may be limited to eligibles who show completion of 21 hours of economics courses to meet the full requirement in paragraph A.

3. The experience offered in combination with specified educational courses to meet the requirements in paragraph B, above, should include evidence of professional economics work in research, investigation, interpretation, operation, or analysis which requires an intimate working knowledge of the principles and theories of economics and their practical application.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the minimum education requirements. Such professional experience or graduate education must have been in, or directly related to, economics or to one of the specialized fields of economics, e.g., labor, financial, agricultural, etc.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS-11 Research positions	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-11 level after a short orientation period.
GS-12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

QUALITY OF EXPERIENCE

For grade GS–7: The ability to perform professional duties involving the application of the principles and elementary theories of economics under direct supervision. Work history must have provided experience in problem appraisal and definition; the evaluation of descriptive, explanatory, and statistical data; and the preparation of simple analytical reports or specialized assignments of an equivalent complexity and responsibility.

For grade GS–9: The ability to perform moderately difficult and responsible work in economics involving a fundamental knowledge of accepted methods and techniques under general supervision. Experience record must indicate skill in the use of descriptive, expository, and statistical information and in the preparation of interpretive and analytical reports which will require only general editing and professional review.

For grade GS–11: Initiative, resourcefulness and the ability to perform professional work in economics of some difficulty and responsibility under only very general supervision. Experience pattern must demonstrate the applicant's ability to conduct a limited program or a single aspect of a larger program, to organize data collection, to select and apply appropriate methods of analysis, and to evaluate findings and draw reliable conclusions.

For grade GS–12: Skill, judgment, and technical competence in the use of economic principles and professional methods of analysis in the solution of difficult and complex economic problems. Experience must have demonstrated applicant's ability to prepare thorough and comprehensive reports or analytical studies relating to difficult problems in economics.

For grade GS–13: Thorough understanding of economic principles and theories and a wide knowledge of current economic factors and their implications. Experience must demonstrate applicant's ability in either (1) the organization, direction, and coordination of complicated and important economic research programs; or (2) marked technical competence in economics research including the development of new methods of economic analysis, or new economic knowledge of value to Government officials responsible for important decisions on economic programs or services.

For grades GS–14 and 15: Comprehensive understanding of economic principles and theories as well as of the implications and meaning of current economic activities. Experience must demonstrate (1) skill and facility in the organization, direction, and coordination of complex and difficult research programs of major economic significance; or (2) exceptional technical competence in economics research of high caliber resulting in important contributions to the fundamental knowledge in the field; (3) the ability to conduct high-level consultative or advisory work regarding the economic aspects of important diplomatic, executive, or legislative programs or services; (4) skill in the application of

economic analysis in the formulation of sound projects and programs.

The grade level for which applicants are considered qualified will be determined by the quality of their experience as shown by the scope and level of the responsibilities involved, their influence on policy and program, and the complexity of the problems handled.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

WRITTEN TESTS

All applicants for positions at GS–5 and 7 must pass an appropriate qualifying written test. The written test should be waived in in-service placement actions, but not for appointments outside the register.

BASIS OF RATING

Applicants will be rated on a scale of 100 on the amount and quality of their experience, education, and training in relation to the requirements of these positions. Such ratings will be based upon competitors' statements in their applications and upon any additional evidence which may be secured by the Civil Service Commission.

SELECTIVE PLACEMENT

Economist positions of all types share in the requirements for knowledge of basic economic principles related to the production, distribution, and consumption of society's resources and for understanding of the problems of observing, recording, quantifying, and measuring economic phenomena. However, because the scope of economic activity in Government may, on the one hand, be so broad and all-encompassing and, on the other hand, so extensively detailed and varied, some positions in this series may require additional specialized knowledges.

Such specialized requirements may vary significantly from one position to another. In order to provide maximum flexibility in the matching of individual economist's qualifications to particular economic assignments, selective placement procedures may be used where applicable.

Following is a list of some of the types of specialized knowledge which might be required in particular positions to a degree necessitating the use of selective placement (the list is intended as illustrative only):

1. Knowledge of particular groups of cultural institutions, bodies of statistical data, sources of information related to a specific subject matter.
2. Geographic, cultural, and historic knowledge of a particular region of the world.
3. Knowledge of a foreign language.
4. Extremely great knowledge of particular methodology, technique or tool of analysis such as mathematics, accounting, or statistics.
5. Professional level knowledge in another field such as engineering, commercial law, technical agriculture, political science, etc.
6. A comprehensive and specialized knowledge of a particular economic resource or group of resources.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 8; in addition, applicants must possess emotional and mental stability.

There may be a few positions covered by this standard which can be performed efficiently and safely by the blind with the assistance of a reader. Therefore, applications from the blind will be accepted.

FACTORS TO BE CONSIDERED IN EVALUATING APPLICANTS

1. The value of any type of experience may be measured by the difficulty, importance, and scope of the duties performed reflected in—

(a) the demonstrated breadth and level of knowledge of economic principles and theories;
(b) the required ability to plan and conduct technical studies in economics;
(c) effectiveness in establishing and maintaining good working relationships;
(d) skill in preparing written technical reports and/or in making oral presentations of technical information;
(e) the demonstrated ability to plan, supervise, and coordinate the work of others (for supervisory jobs only);
(f) career progression indicating the ability to learn and apply new techniques or adapt to new situations;
(g) the evident effect of suggestions on policy and program decisions;

2. Other things being equal, experience which has provided greater familiarity with the sources and methods of collecting, quantifying, analyzing, and evaluating economic information in a particular subject-matter field is more valuable than experience (at the same general level) in a different—though related and applicable—field.

3. Examples of experience which may be considered qualifying in meeting the experience requirements for these positions include work in an appropriate subject-matter area, such as—

(a) individual economics research assignments requiring planning, information assembly, analysis and evaluation, conclusions and report preparation;
(b) supervisory or project coordination assignments involving a staff of professional economists and requiring the evaluation and interpretation of economic information;
(c) teaching assignments in a college or university which have included both class instruction in economics subjects and either (1) personal research which has produced evidence of results, (2) direction of graduate theses in economics, or (3) service as a consultant or advisor on technical economics problems.

4. Experience in closely related fields which has *not* involved the use and understanding of economics principles and theories *may not* be used as qualifying experience for these positions. Special attention on this point should be given to certain types of work which may or may not have provided professional economics experience. The following list offers examples of work which requires special care in such determinations:

(a) Economic statistics
(b) Industrial surveys
(c) Management of individual business enterprises including farms
(d) Industrial planning
(e) Writing or editorial work in economics subjects
(f) Security analysis

Although professional economics assignments often involve subjects such as the foregoing, work in such areas does not necessarily involve any knowledge of economics principles or theory.

5. The length and caliber of the list of technical economics publications produced, a record of significant consultative services involving important and difficult economics determinations, or other evidence of professional prestige and recognition may be credited toward increasing the quality rating of the education-experience pattern offered.

6. Applicants who, in addition to meeting economics education requirements, also have college degrees in another field (e.g., B.S. in Economics and B.S. in Accounting or Engineering) may be given extra credit if the additional degree is in a field directly applicable to the position for which application is made.

Foreign Affairs Analyst GS–5

Foreign Affairs Officer GS–7/15

DESCRIPTION OF WORK

Foreign affairs analysts and officers perform research or other professional work in the departmental formulation and direction of the foreign affairs of the Government or in the study and disposition of information bearing on international relations.

BASIC REQUIREMENTS FOR ALL GRADES

For all positions either A, B, or C is required:

A. A full 4-year course in an accredited college or university including (1) 24 semester hours in one or more of the social sciences including international law and international relations, political science, economics, history, sociology, geography, social or cultural anthropology, law, or statistics; or in the humanities; or (2) 12 semester hours in one of the above fields *and* 12 semester hours in statistics; *or*

B. Four years of experience in one or more of the fields listed in A above in work connected with international organizations, problems, or other aspects of foreign affairs; *or*

C. Any time-equivalent combination of A and B, provided that for each year of education offered, the applicant shows an average of 6 semester hours in one of the subjects listed in A above.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in a field of the social sciences or the humanities that is directly concerned with international relations, international organizations, or problems of a specific foreign country or geographic area.

QUALITY OF EXPERIENCE

Qualifying work experience may have been gained through residence, study, teaching, business or commercial activities, military service, newspaper work, military or civil government activities, missionary or international relief work or other experience in foreign countries.

For positions in grade GS–12 and above, this experience must have included either (*a*) responsibility for the direction and coordination of research, analysis, or other professional work in one or more of the fields listed in A above, or (*b*) specialized individual professional work in one or more of these fields of a high level of difficulty and responsibility. This experience must have been at a high level in such specialized activities as (1) international organization affairs involving formulation of instructions and policy guidance for United States representatives in such organizations; (2) transport and communication involving knowledge of economic, political, and technical aspects of international aviation, shipping, inland transport, or radio, telephone, and telegraph, etc.; (3) cultural affairs involving formulation and operation of policy on large-scale international cultural exchange programs; (4) occupied area affairs involving problems of occupation of conquered or liberated countries, regions, or zones; or (5) other specialized international affairs such as analyzing public opinion and attitudes, evaluating specific conditions or trends or forces in a foreign country, formulating policy on problems of petroleum resources or fisheries, etc., representing foreign interests, protecting American property or interests, arranging for conferences, or similar activities.

Teaching college level courses in international relations or other social sciences will be accepted as professional experience in these fields. To be accepted toward the requirement of 3 years of high-level experience in international relations, such teaching experience must have included or been supplemented by concurrent major participation in high-level work in the field of international relations of the type and quality described above.

For all positions, ability to deal effectively with associates, representatives of other government agencies, representatives of foreign governments, and the general public is essential.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Advanced analytical positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily analytical or very similar exploratory developmental work of a creative or advanced nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Advanced analytical positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily analytical or very similar research-type exploratory developmental work of a creative or advanced nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade.

(Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

a. Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

b. Completion of a total of at least 6 years of legal and pre-legal education which meets all the requirements for an LL.B. or a J.D. degree with emphasis in international law meets all the requirements for grade GS–9 for those positions which require a thorough knowledge of international law.

QUALIFYING FIELDS OF GRADUATE EDUCATION

Graduate study in the social sciences, including such fields as international relations, foreign affairs, political science, economics, history, sociology, geography, or social or cultural anthropology, in interdisciplinary "area studies" or similar programs, or in the humanities or international law, is acceptable.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

IN-SERVICE PLACEMENT

Most foreign affairs officer positions also require knowledge of or experience in one or more specific fields of study, a speaking or reading knowledge of a foreign language, or an intimate knowledge of a specific foreign geographic area. Selection of applicants for such positions will be made on the basis of the specialized requirements.

A few of these positions require a knowledge of the cultural backgrounds of foreign countries in such fields as music, art, literature, etc. Applicants who offer study only in the field of humanities to meet the requirements specified above will be considered for these positions only.

WRITTEN TEST

A written test is required for GS–5 and 7 positions. The test should be waived for all in-service placement actions but not for appointments outside the register.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2. In addition, applicants must possess emotional and mental stability.

International Relations Officer GS–5/15

DESCRIPTION OF WORK

International Relations Officers perform professional work in the formulation and implementation of the foreign policy of the United States in the conduct of the relations, primarily of a political or politico-economic nature, of the United States and other governments.

BASIC REQUIREMENTS FOR ALL GRADES

Either A, B, or C is required.

A. A full 4-year course in an accredited college or university including (1) 24 semester hours in one or more of the social sciences including international law and international relations, political science, economics, history, sociology, geography, social or cultural anthropology, law, or statistics; or in the humanities; or (2) 12 semester hours in one of the above fields *and* 12 semester hours in statistics; *or*

B. Four years of experience in one or more of the fields listed in A above in work connected with international organizations, problems, or other aspects of foreign affairs; *or*

C. Any time-equivalent combination of A and B, provided that for each year of education offered, the applicant must show an average of 6 semester hours in one of the subjects listed in A above.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in a field of the social sciences or the humanities that is directly related to international relations. Graduate study in such fields as international relations, international law, political science, economics, history, sociology, geography, social or cultural anthropology, law, or statistics or in the humanities is acceptable.

Qualifying experience which has provided an intimate knowledge of a foreign country or geographic area may have been gained through residence, study, teaching, business or commercial activities, military service, newspaper work, military or civil government activities, missionary or international relief work or other experience in foreign countries. It may also have been gained through teaching college level courses in international law, international relations or problems associated with a specific foreign geographic area.

To qualify for positions in grades GS–12 and above on the basis of experience, this experience must have included either (*a*) responsibility for the direction and coordination of research, analysis, or other professional work in one or more of the fields listed in A above, or (*b*) specialized individual professional work in one or more of these fields of a high level of difficulty and responsibility.

For all positions, ability to deal effectively with associates, representatives of other Government agencies, representatives of foreign governments, and the general public is essential.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at last 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) *or* Three full academic years of graduate education.
GS–11 Advanced analytical positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily analytical or very similar exploratory developmental work of a creative or advanced nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Advanced analytical positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily analytical or very similar research-type exploratory developmental work of a creative or advanced nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

a. Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

b. Completion of a total of at least 6 years of legal and pre-legal education which meets all the requirements for an LL.B. or a J.D. degree, with emphasis in international law, meets all the requirements for grade GS–9 for those positions which require a thorough knowledge of international law.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in

General Schedule Occupations," in part III of this handbook.

IN-SERVICE PLACEMENT

Most international relations officer positions also require knowledge of or experience in one or more specific fields of study, a speaking or reading knowledge of a foreign language, or an intimate knowledge of a specific foreign geographic area. Selection of applicants for such positions will be made on the basis of the specialized requirements.

A few of these positions require a knowledge of the cultural backgrounds of foreign countries in such fields as music, art, literature, etc. Applicants who offer study only in the field of humanities to meet the requirements specified above will be be considered for these positions only.

WRITTEN TEST

A written test is required for all positions at grades GS–5 and 7. This test should be waived for in-service placement actions, but not for appointments outside the register.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2. In addition, applicants must possess emotional and mental stability.

Intelligence Research Specialist GS–5/15

Intelligence Operations Specialist GS–5/15

EXPERIENCE REQUIREMENTS

Except for the substitution provided for below, applicants must have had, as a minimum, experience of the length specified in the following table and of the quality described below. The grade level, however, will depend primarily on the quality, scope, and responsibility of experience rather than length.

Grade	General (years)	Specialized (years)	Total (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11–15	3	3	6

General Experience

Progressively responsible administrative, professional, investigative, or technical work which has required the ability to deal effectively with individuals or groups of persons; to collect, assemble, and analyze pertinent facts; and to prepare clear and concise written reports.

Specialized Experience—Intelligence Research Specialist

Progressively responsible professional experience which has included research and analysis in one or more of the following or related fields: Military science, mathematics, astronomy, astronautics, physics, engineering, chemistry, climatology, meteorology, demography, ecology, metallurgy, telecommunications, forestry, cartography, biology, bacteriology, epidemiology, geology, agricultural sciences, geodesy, geography, statistics, traffic and transportation, international relations and international law, political science, economics, history, sociology, social or cultural anthropology, psychology, public health, botany, oceanography, radiology.

For positions in grades GS–12 and above, the experience must have included (a) responsibility for direction and coordination of research, (b) planning of intelligence activities, or (c) specialized individual research or technical work at a high level of difficulty and responsibility.

For all levels, experience in teaching college-level courses in fields listed above will be accepted as qualifying specialized experience provided such teaching included or was supplemented by individual research of the type described under "Description of Work" or by the direction of research projects conducted by graduate students.

Specialized Experience—Intelligence Operations Specialist

Progressively responsible experience in one or more of the following fields as applied to foreign and international affairs, intelligence operations, or related fields; Military science, international relations and international law, political science, economics, history, law, sociology, social or cultural anthropology, psychology.

For positions in grades GS–12 and above the experience must have included (a) responsibility for the direction and coordination of professional activities, (b) planning of intelligence or related operations, or (c) specialized individual work in intelligence or related fields of a high order of difficulty and responsibility.

Nonqualifying Specialized Experience

1. Counterintelligence or other investigative experience which has involved collection of data on individuals and their activities.

2. Prisoner-of-war interrogation except where such work is part of a broader-scale research activity.

3. Translating or interpreting which does not involve analysis and evaluation of the content of the material translated.

4. Work in civil or military censorship which is primarily concerned with the review of material to be mailed or published in order to determine whether it meets security standards.

5. Experience in supervising employees performing clerical functions in connection with intelligence work.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

QUALITY OF EXPERIENCE

The applicant's record of experience and training must show that he has the personal qualities and abilities necessary to perform completely the duties of the position for which he is applying. Length of experience is of less importance than demonstrated success in positions of a responsible nature and the breadth and scope of pertinent knowledges and abilities required in performing the duties of such positions. Possession of the required length of experience and training will not of itself be accepted as meeting the experience and training requirements.

The factors listed below will be considered in making determinations on required quality of specialized experience in relation to the level of difficulty of the position under consideration. It is not necessary that applicants qualify in all the factors.

A. For all positions:

1. Possession of general factual knowledge and familiarity with contemporary affairs by virtue of education, reading, work experience, avocation, and/or travel.

2. Ability to write well and concisely, to express thoughts clearly, and to develop ideas in logical sequence in studies, technical and other types of reports, instructions, guides, etc.

3. Ability to convey ideas fully and accurately through discussions, lectures, briefings, etc.

4. Personal attributes, including capacity for professional growth, interpersonal relationships, emotional stability, professional ethics, motivation, ability to work under pressure, etc.

B. For Intelligence Research Specialist positions:

In addition to Factors 1–4 listed in A above:

5. Research skill in terms of ability to collect and evaluate research data, to absorb and synthesize vast quantities of information, and to draw logical interpretive conclusions.

6. Skill in the use of research tools such as library holdings, foreign languages, photographs, statistics, graphics, maps, etc.

C. For Intelligence Operations Specialist positions:

In addition to Factors 1–4 listed in A above:

7. A knowledge of the intelligence process, which includes knowledge of the organization for and methods of collecting and disseminating intelligence data and of the resources and interests of the intelligence community, and the ability and knowledge to relate the collection and dissemination processes of an activity to the total intelligence process.

For grades GS–12 through GS–15, at least 1 year of the required specialized experience must have been at a level of difficulty comparable to the next lower grade in the Federal service. For grades GS–5/11, applicants must show either 6 months of specialized experience at a level of difficulty comparable to the next lower grade in the Federal service, or at least 1 year must have been comparable to the second lower grade in the Federal service.

SUBSTITUTION OF EDUCATION

1. Undergraduate education.—For a maximum of 3 years of the required general experience, applicants may substitute successfully completed study in an accredited college or university at the rate of 1 year of academic study for 9 months of experience.

Completion of courses at significant or nationally important staff-level military-civilian institutions such as the Industrial College of the Armed Forces, the National War College, and others of comparable level will be considered and weighed when evaluating educational qualifications.

2. Full-time graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For 1 year of specialized experience.*—One full academic year of graduate education in one of the following or in a directly related field: military science, mathematics, astronomy, astronautics, physics, engineering, chemistry, climatology, meteorology, demography, ecology, metallurgy, telecommunications, forestry, cartography, biology, bacteriology, epidemiology, geology, agricultural sciences, geodesy, psychology, public health botany, oceanography, radiology, geography, statistics, international relations, international law, political science, economics, history, sociology, social or cultural anthropology. (This amount and kind of education meets all the requirements for grade GS–7.)

b. *For 2 years of specialized experience.*—Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education, which is in the fields described in paragraph a above. (This amount and kind of education meets all the requirements for grade GS–9.)

c. *For 3 years of specialized experience.*—Completion of all requirements for a doctoral degree (Ph. D. or equivalent) or 3 full academic years of graduate education, which is in the fields described in paragraph a above. (This amount and kind of education meets all the requirements for grade GS–11.)

3. *Alternate requirements.*—Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

WRITTEN TESTS

All applicants for positions at GS–5 and GS–7 must pass an appropriate written test. The written test should be waived for in-service placement actions, but not for appointments outside the register.

No written test is required for positions at GS–9 and above.

SELECTIVE PLACEMENT

Intelligence positions require a combination of one or more of the following knowledges: (1) a knowledge of one or more of the professional fields described in the section on Specialized Experience, (2) a knowledge and understanding of international relations and foreign affairs, (3) a knowledge of contemporary conditions of one or more foreign countries or geographic areas, (4) a knowledge of a foreign language, or (5) a knowledge of the intelligence process (which includes the organization for and methods of collecting and disseminating data and of the resources and interests of the intelligence community).

These foreign country knowledges may have been gained through residence, study, teaching, business or commercial activities, military service, newspaper work, military or civil government activities, missionary or international relief work, or other similar experience in foreign countries.

Selection of applicants for intelligence positions will be made on the basis of the specialized requirements of the position to be filled.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

MANPOWER DEVELOPMENT SPECIALIST SERIES

Manpower Development Specialist, GS–5/15

DESCRIPTION OF WORK

Manpower Development Specialists perform specialized administrative and technical work concerned with the implementation, promotion, coordination, monitoring, and evaluation of federally funded programs for the development and utilization of manpower resources. The work requires a specialized knowledge and the application of manpower methods, practices, techniques, regulations and principles, an understanding of the relevance of the social, behavorial, and management sciences in the solution of manpower problems, and a recognition of the importance of the roles and interrelationships of Federal/State/local and nongovernmental entities in the development and utilization of manpower resources.

Duties performed by Manpower Development Specialists include program development, planning or promoting on-the-job or institutional training programs for unemployed or underemployed workers; monitoring and evaluating the efforts and activities of State and local manpower agencies and organizations; providing technical guidance, assistance, and leadership to the employees and officials of local, State, and private enterprise organizations engaged in manpower activities; coordinating and integrating the efforts of various public and private nonprofit manpower agencies to achieve maximum quality of services provided and reduce program coverage inadequacies; testing and evaluating new manpower programs and ideas; encouraging private enterprise to create new or specially designed job opportunities for disadvantaged workers.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Experience requirements

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11 and above	3	3	6

General experience is experience in administrative, professional, technical, or other responsible work which provided: (1) ability to collect and evaluate facts and draw conclusions; (2) ability to interpret and apply project, regulatory or contract provisions, or specifications; (3) ability to use analytical and evaluative methods and tools; (4) ability to express ideas and concepts in writing, orally or by numerical or graphic means; and (5) skill in dealing with others in person-to-person work relationships.

Specialized experience is experience in manpower activities which has provided the skills, abilities, and knowledges required to perform manpower development specialist work at the grade level for which application is made. This experience must also show knowledges and abilities appropriate to the kind of work to be performed. The following are examples: (1) knowledge of the goals, methods, principles, and practices pertinent to manpower surveys, studies, and operations; (2) knowledge of pertinent specialized social behavioral science methods, practices, and principles; (3) knowledge of practical data collection and statistical analysis and sampling methods and techniques; (4) ability to identify and interpret contract specifications, program requirements, regulations, policy statements, and other similar guideline material; (5) ability to conduct manpower studies, analyze the results and make sound recommendations for appropriate changes to or improvements in manpower programs and delivery systems; (6) ability to monitor manpower projects to a successful conclusion; (7) ability to communicate effectively, orally and in writing, by preparing effective reports, correspondence and other written technical matter, and making oral reports of technical information to the general public, groups, and individuals; and (8) ability to establish, maintain, and improve interpersonal relationships with individuals and groups having diverse backgrounds and interests.

Specialized experience may have been acquired in fields such as industrial relations, employment services, education, social work, public administration, occupational analyses, labor economics, industrial psychology as well as manpower development and utilization activities.

Substitution of education for experience

(1) Education successfully completed in a residence school above the high school level which included an average of 6 semester hours (9 quarter hours) per year in such fields as the social and behavioral sciences, public administration, or an academic field or discipline directly related to manpower development and utilization work, e.g., industrial psychology or sociology, employee development and training, manpower analysis or other appropriate subject matter area, may be substituted for experience at the rate of 1 academic year of study for 9 months of experience up to a maximum of 3 years of *general experience.*

(2) Successfully completed graduate education may be substituted for experience on the following basis. The education must have equipped candidates with the knowledge and ability to perform fully the work of the positions for which they are being considered.

a. For 1 year of specialized experience.—One full academic year of graduate education in the fields listed in (1) above. (This amount and kind of education meets all the requirements for grade GS–7.)

b. For 2 years of specialized experience.—Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education, which is in one of the fields described in paragraph "a" above. (This amount and kind of education meets all the requirements for grade GS–9.)

(3) The Superior Academic Achievement Standard in section III of part II, Instructions of Users, of this handbook, is applicable at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate manpower services or other similar experience is qualifying at grade GS–9.

(4) Equivalent combinations of experience in the manpower field or other related experience and graduate education of the types described above are acceptable at grades GS–7 and GS–9. (Thirty semester hours (45 quarter hours) of part-time graduate education is considered to be equal to 1 full academic year of graduate education.)

QUALITY OF EXPERIENCE

For positions at any grade the amount of experience will not in itself be accepted as proof of qualification. Candidates' records of experience and training must show that they have the ability to perform the duties of the position.

For grades GS–11 and below, at least 6 months of the required experience must have been at a level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

SUPERVISORY POSITIONS

For supervisory manpower development specialist positions use the qualification standard for Supervisory Positions in General Schedule Occupations, in part III of this handbook in combination with this standard.

WRITTEN TEST

Candidates for competitive appointments to positions at grades GS–5 and GS–7 must pass an appropriate written test.

For inservice placement actions, the test is *not* required and, therefore, may *not* be used on a pass-fail basis. In addition, the test may *not* be used in evaluating or ranking eligible em-

ployees unless the test is approved for this purpose by the Civil Service Commission. (See section A–3, appendix A, FPM Supplement 335–1.)

BASIS OF RATING

Candidates for competitive appointments to positions at grades GS–5 and GS–7 will be rated on the basis of their written test scores.

For grades GS–9 and above, candidates will be rated, on a scale of 100, on the quality and extent of their total experience, education, and training. Ratings will be based upon candidates' statements in their applications and any additional information that may be secured by the Civil Service Commission.

SELECTIVE PLACEMENT

Some manpower development specialist positions require highly specialized skills, abilities, and knowledges. Consideration for such positions may be restricted to those candidates whose background indicated that they possess the required skills, abilities, and knowledges.

GUIDE FOR THE EVALUATION OF CANDIDATES

Because of the diversity of manpower activities both within and outside the Federal service, specialized manpower skills, abilities, and knowledges may be acquired in a number of work situations and occupations. Accordingly, careful attention should be given to all aspects of the position being evaluated—the environment in which the work is performed; the skills, abilities, and knowledges required; the purpose of the work—as well as assigned duties and responsibilities.

Not all positions that include manpower functions are classified in the Manpower Development Series. Positions in the following series often include manpower functions: Economics, GS–110; Personnel Management, GS–201; Program Analysis, GS–345; Psychology, GS–180; Sociology, GS–184; Social Service, GS–187; Unemployment Insurance, GS–106; Urban Planning, GS–020; and Wage and Hour Compliance Series, GS–249.

Individuals with experience in these types of positions because of the nature and purpose of their work, are exposed to (and frequently must niques, procedures, and regulations as they aclearn and apply) manpower methods, techcomplish their assignments. As an example, both the Program Analyst, GS–345, and the Personnel Management Specialist, GS–201, who assist in the planning, establishment, and administration, and subsequent evalaution of the activities of a local veterans assistance center or an area manpower planning system may use manpower methods, techniques, and procedure in performing their assignments. This type of experience, when a significant and identifiable part of the job requirements, may be creditable as specialized experience for a manpower development specialist position. It is most important, therefore, that the evaluation process not become a cursory review of job title, series, and grade.

The evaluation of a candidate's experience, education, and training in both competitive and inservice placement actions should be concentrated upon those factors which provide the best indication of the candidate's ability to perform successfully the duties of the position to be filled. The relative importance of the factors will, of course, vary from position to position in terms of grade level, program concentration, location of the position, etc. These variations should be considered and given appropriate emphasis in the ranking process. The skills, abilities, and knowledges in the general and specialized experience paragraphs of this standard should be considered in the evaluation of each candidate's background. Consideration should also be given to the following additional items as appropriate:

—Ability to work effectively in stress situations;
—Ability to communicate effectively through oral presentations;
—Ability to plan and organize activities;
—Ability to select, interpret, and apply guideline and precedent materials;
—Ability to identify, analyze, and resolve pro-

gram and management problems in manpower activities;
—Ability to adapt to changing work situations;
—Ability to prepare reports and other written technical material;
—Ability to work (a) independently or (b) with others as a member of a team;
—Ability to respond positively to new ideas or suggestions;
—Ability to establish, maintain, and improve interpersonal relationships with individuals and groups having diverse backgrounds and interests.

Methods for evaluation

Information regarding candidate's possession or lack of the skills, abilities, and knowledges embodied in the general and specialized experience requirements the factors listed above can be acquired from a variety of sources, including, but not limited to:

(1) *Written performance appraisals and supervisory evaluations*

Written appraisals when properly utilized offer much information about the candidate beyond the assignment of simple overall adjustive ratings, including, in most instances, an assessment of the candidate's potential for success in both promotional and developmental assignments.

(2) *Personal interviews*

Interviews with present and former supervisors permit inquiries into the nature of the candidate's experience and background. To be most effective, the interview should be planned to elicit response regarding:

(a) The candidate's performance on specific work assignments;
(b) Those factors which are critical to success in the position to be filled;
(c) Examples of the candidate's past performance on assignments which indicate potential for successful performance in the position to be filled.

(3) *Review of candidate's education and experience background*

Review of the Official Personnel Folder, personal qualification statements, resumes, and other available written information should be concentrated upon those aspects of the candidate's education and experience which have special significance in the job environment or are particularly relevant to the critical performance factors of the position to be filled. In this review, attention should be given to the type, level, progression, and recency of the experience shown by the candidate.

Other useful methods for the evaluation of candidates for manpower development specialist positions are described in FPM Chapter 335–1, Evaluation of Employees for Promotion and Internal Placement. Several procedures, including job element rating, are suggested in this material, one or more of which may be appropriate for evaluating candidates for these positions.

SUPERVISORY MANPOWER DEVELOPMENT SPECIALIST

The Qualification Analysis and Assessment of Potential Form included in the qualification standard for Supervisory Positions in General Schedule Occupations should be used for Supervisory Manpower Development Specialist positions supplemented with the following additional items, as appropriate:

1. *Knowledge of and Competence in the Management of Manpower Programs and Functions*

The extent to which the candidate is knowledgeable and competent in the management of manpower programs and functions pertaining to:

(a) Specialized manpower field or area (specify);
(b) (Specify) functional or program area;

(c) Staff support program;
(d) Federal/State/local manpower delivery systems and their interrelationships;
(e) Other (specify).

2. *Knowledge of and Competence in Administration*

The extent to which the candidate is knowledgeable and competent in the following administrative areas:

(a) Planning, programing, and budgeting (PPBS);
(b) Management by objectives (MBO);
(c) Financial management;
(d) Personnel management;
(e) Physical resource or property management;
(f) Data processing;
(g) Other (specify).

PHYSICAL REQUIREMENTS

See Part II, Physical Requirements, paragraph 3. In addition, candidates must possess emotional and mental stability.

Geographer GS–5/15

DESCRIPTION OF WORK

Geographers employ established methods and techniques in locating and evaluating geographical evidence, synthesizing and analyzing geographical information, and establishing geographical facts (*a*) to determine the location, distribution, interrelationships and significance of things geographic, (*b*) to do regional and area studies, and (*c*) to ascertain the processes of geographic change. Geographers present the results of studies and research in written, graphic, and statistical form. The purpose of geographic study and research as performed in the Federal service is to insure that full consideration is given to the geographical aspects of problems, and to serve as background information for use by agency officials and others in developing and modifying policies and programs. (For a fuller discussion of the occupation see the classification standard for the Geography Series, GS–150.)

BASIC REQUIREMENTS FOR ALL GRADES

All applicants must have successfully completed the basic requirement specified under either A or B below.

A. A full 4-year course of study in an accredited college or university leading to a bachelor's degree in geography or in a related physical or social science, e.g., geology, meteorology, economics, statistics, sociology, anthropology, political science, history, cartography, etc. The study must have included or been supplemented by courses in geography or related fields totaling 24 semester hours, or its equivalent for colleges and universities on the quarter system. Fifteen of the 24 semester hours must have been in courses creditable toward a major in geography.

B. Courses in an accredited college or university consisting of 24 semester hours in geography or related fields, provided 15 of the 24 semester hours have been in courses creditable toward a major in geography, plus additional appropriate experience or education which, when combined with the 24 semester hours of course work, will total 4 years of education and experience and give the applicant knowledges and skills comparable to those acquired through the successful completion of the 4-year college course described in "A" above.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, geography.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

QUALITY OF EXPERIENCE

The experience must have provided candidates with the following kinds of knowledges:

(1) Ability to collect and evaluate geographic data from a variety of sources; to absorb, synthesize, and analyze quantities of information; and to draw logical interpretive conclusions.

(2) Knowledge of the worldwide complexion of physical and/or human geography.

(3) Knowledge of areas of geographic emphasis; e.g., regional geography, urban geography, topography (geomorphology), economic geography, political geography, climatology.

(4) Skill in the use of such study and research tools as maps and charts, library holdings, archives, photographs, field methods, foreign languages, statistics (frequency studies, quantitative analysis, etc.) and the findings of other physical and social sciences when applicable to geography.

(5) Ability to develop information and ideas for presentation in well written studies, reports, instructions, guides, etc. (including such graphic devices as maps and charts, photographs, and statistical tabulations).

(6) Knowledge of cartographic methods and techniques.

For positions in GS–12 and above the experience must have included at least one of the following: (a) responsibility for direction and coordination of special geography inves-

tigations or research, (b) responsibility for planning special geography investigations or research, or (c) individual performance of geography investigations or research of a specialized nature and at a high level of difficulty and responsibility.

For all levels, experience in teaching college level courses in geography or related fields will be accepted as qualifying professional experience provided such teaching included or was supplemented by responsibility for directing or personally carrying out special geography investigations or research such as described under the statement of duties.

QUALIFYING FIELDS OF GRADUATE EDUCATION

Graduate study in the field of economics, geology, meteorology, or political science is also qualifying when such study includes (1) course work strongly emphasizing economic geography, or (2) a dissertation on a geography subject such as to require the use of professional geographic methods and techniques in its preparation.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

WRITTEN TEST

An appropriate written test is required for all positions at GS–5 and GS–7. The written test should be waived for in-service placement actions, but not for appointments outside the register.

No written tests are required of applicants at the GS–9 level and above.

BASIS OF RATING

For grades GS–5 and GS–7, applicants will be rated on a combination of their scores on the appropriate written test plus an evaluation of their experience and training.

For grades GS–9 and above, applicants will be rated on a scale of 100 on the quality and extent of their experience, education, and training in relationship to the duties of the positions. This includes (1) progressive advancement as shown by applicants' academic records and experience, (2) the level, scope, and responsibility of applicants' present and past positions, (3) special or unique training, experience, or research in geography and/or closely related fields, (4) publications and recognition in the form of special honors, awards, etc. Such ratings will be based upon applicants' statements in the applications and upon any additional evidence received by the Commission.

Concise but detailed descriptions of course work, in addition to the course title, should be furnished. Applicants should give a clear and complete description of their experience and training and the projects they have worked on that show their possession of the required knowledges and abilities for geographer positions.

QUALIFICATION INQUIRIES

Confidential inquiries, including contacts with applicants' present and former supervisors and associates, may be made to obtain further information concerning applicants' technical and personal qualifications and general suitability for these positions.

SELECTIVE PLACEMENT

Applicants for positions in this series may be selectively placed on the basis of having special training or experience in such areas of geographic emphasis as physical or human (cultural) geography, or, in the case of positions requiring more specific specializations, in such areas as topography or geomorphology, climatology, urban geography, economic geography, political geography or regional geography. In some cases, positions may involve duties and responsibilities which require persons with a high level of cartographic ability, the ability to

use statistical methods and techniques, or a demonstrated language facility. Selective placement may be made on these bases. Agencies requesting selective placement must show the connection between the kind of training or experience on which they wish to base selective placement and the duties of the position to be filled.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3.

Civil Rights Analyst GS–5/15
Supervisory Civil Rights Analyst, GS–11/15

DESCRIPTION OF WORK

This series includes positions concerned with planning, conducting, and reporting descriptive social science research in the field of civil rights and equal opportunity when the paramount qualification requirement for the position includes a broad knowledge of the field of civil rights, ability to apply accepted documentary and field research techniques to study issues and policies affecting civil rights, consulting skill, and a high degree of writing and oral communication skill. Positions in this series typically involve research into specialized technical fields such as voting rights, public accommodations, equal employment, or labor relations requiring specialized knowledge of a subject-matter area in addition to a broad knowledge of civil rights.

For further information about the nature of the work performed, see the position classification standard for this series. The criteria in the classification standard, and in particular, the benchmark descriptions, should be helpful in evaluating the *level of experience* a candidate has gained outside of the Federal Government, or in any other position outside of the General Schedule.

HOW TO USE THIS STANDARD

STEP ONE: Analyze the position to be filled. Determine the major duties and responsibilities of the position, prepare a complete and accurate position description in Factor Evaluation System (FES) format, and classify the position.

STEP TWO: Identify the job-related knowledges, skills, and abilities required by the position to be filled. Only those elements required by the position to be filled will be used for evaluating candidates. Properly classified civil rights analyst positions require the knowledges and skills described in this standard for the appropriate grade level. Additional selective factors and quality ranking factors may be needed. (See *SELECTIVE PLACEMENT* below.)

STEP THREE: Determine the extent to which each applicant possesses the required knowledges, skills, and abilities. The process of identifying and evaluating evidence of applicants' possession of required knowledges and skills requires the rater to be knowledgeable about the position and to use sound judgment in evaluating the evidence of required qualifications. It also requires skill in identifying evidence from various sources. The following sources are generally acceptable:

(1) job application;
(2) supplemental application form;
(3) employment vouchers from former supervisors, teachers, and others; and
(4) interview reports.

WRITTEN TESTS

None.

MINIMUM EXPERIENCE REQUIREMENTS

Minimum time requirements have been established in this standard. For example, except for authorized educational substitutions, a minimum of three years acceptable experience is required for GS–5. Also, a minimum of one year of experience of the appropriate quality level and kind is required for most higher graded positions. This minimum experience requirement ensures that each applicant will have a period of time to both develop *and* demonstrate the required knowledges and skills. This requirement gives the employing agency minimum assurance that the applicant can do the work of the position. It also provides each applicant with an equal minimum amount of time to demonstrate possession of the required knowledges and skills.

In general for positions above GS–5, the *minimum length* of relevant experience required is only *one year**. However, the kind and level of this experience must have demonstrated possession of the required kinds and qualities of knowledges and skills.

*However, two years of technical assistance work experience at GS–5 or above is required for GS–7. (See Requirements for GS–7, paragraph B, below.)

Applicants are considered to possess minimum qualifications if they have the following levels and amount of satisfactory work performance *in the same line of work:*

—For grades GS–7 through GS–11**, at least one year of experience comparable to the second lower grade in the Federal Service (e.g., one year in the GS–9/GS–10 range is required for GS–11).

—For grades GS–12 and above, at least 1 year of experience at a level of difficulty comparable to that of the next lower grade in the Federal Service.

In determining if applicants possess the required knowledges and skills for a particular grade level, consider *all* paid and unpaid experience, education, and training whether or not it occurred during the minimum one year of experience. All knowledges and skills demonstrated during an applicant's work and education history should be considered to determine if they are of the appropriate kind and level.

*Requirements for GS–5.****

Applicants must meet the requirements of A, B, or C below:

A. Three years of experience (including one year equivalent to GS–4) in administrative, investigative, technical, or other responsible work that demonstrated possession of the skills required to learn and progress in work typical of this series.

OR

B. Successful completion of a full 4-year course in an accredited college or university leading to a bachelors degree in any field. (This level of education is acceptable evidence of possession of all the skills required for GS–5.)

OR

C. Any time equivalent combination of experience and education defined in A and B above. In combining education with experience, an academic year of study is considered equivalent to 9 months experience.

The total creditable experience and/or education described in A or C above *must* have demonstrated possession of *ALL OF THE FOLLOWING SKILLS:*

1. *Skill in writing.* This includes skill in writing factual reports (including analyses and conclusions) that are clear, concisely stated, logically organized, and understandable by the audience for which they are intended.

   This skill may be demonstrated by:

   a. experience that involved writing investigative reports or other kinds of reports which present facts, analyses of facts, and conclusions;
   b. work experience writing straight news, features, or editorials for a newspaper or other publication;
   c. completion of all academic requirements for a bachelor's degree; or
   d. other equivalent demonstration of writing skill.

2. *Skill in oral expression.* This includes the skill to express oneself clearly, concisely, and logically in one-to-one interviews, group meetings, and oral presentations before groups.

   This skill may be demonstrated by:

   a. work experience in which interviewing or other forms of oral expression are critical to successful performance such as classroom teaching, social work, counseling, some secretarial work typical of the GS–318 series, some police work typical of the GS–083 series, or investigative work typical of the GS–1810 or GS–1811 series in the General Schedule;
   b. one or more college level courses in such areas as speech, public speaking, etc.;
   c. performance in a structured employment interview designed to measure this skill; or

**In the event any positions are filled at GS–6, one year of experience at the GS–5 or equivalent level is required.

***Applicants who meet the requirements of GS–7 also qualify for GS–5 or GS–6.

d. other equivalent demonstration of this skill.

3. *Skill in investigating and analyzing problems.* This includes skill in determining sources of information, gathering the information through systematic review of general and specialized references, and from individuals through interviewing, assembling, interpreting, and evaluating a large number of facts to define a problem, identify root causes, and arrive at a solution.

This skill may be demonstrated by:

a. work experience requiring this skill such as newspaper reporting, substantive investigative work or research assistance work;

b. work in a wide variety of fields which involved the application of problem analysis techniques (e.g. describing a problem, identifying possible causes of the problem, collecting evidence, testing the possible causes, deciding on the most likely cause, and prescribing a solution to fit the problem). Skill in problem analysis may be directed to problems related to people, things, or data. Therefore, this skill may have been demonstrated in jobs as varied as social work support, instructor, instructional assistance, engineering technician, product inspection, statistical assistance, or other kinds of problem solving work;

c. successful completion of a college level course, or independent study at an equivalent level, that involved the preparation of research papers for which extensive gathering and analysis of data was required (e.g., library research or interviewing for information); or

d. other equivalent demonstration of this skill.

4. *Skill to read, understand, interpret, and explain technical material such as written regulations, laws, or court decisions.* This includes the ability to interpret the specialized language of laws and regulations in the context in which they were written, to quickly gain an understanding of their meaning, to apply them to a variety of specific factual situations, and to be able to clearly explain their meaning to persons unfamiliar with the particular body of laws or regulations.

The skill may be demonstrated by:

a. legal clerical or legal secretarial work that involved explaining the contents of legal documents to the general public. (Typing legal documents does not meet this requirement.);

b. substantive clerical or technical assistance work in insurance, banking, Federal personnel administration, military personnel administration, Federal income tax, employment assistance, welfare or public assistance, or similar work that involved reading and understanding repair or operating manuals, or technical or substantive regulations well enough to apply them to a variety of factual situations, or to explain them to the general public;

c. technician work or research support work in engineering, the physical sciences, or social sciences that required reading and understanding complex technical material;

d. one or more college level courses in areas such as constitutional law, business law, administrative law, or similar courses; or

e. other equivalent demonstration of this skill.

5. *Skill in meeting and working effectively with persons regardless of their socioeconomic backgrounds.* This includes skill in dealing and communicating with men and women of various racial and ethnic backgrounds and socioeconomic strata of society. This element measures potential skill in dealing effectively with a variety of

persons such as university presidents, corporation managers, politicians, lawyers, factory workers, students, teachers, unemployed or disadvantaged persons, or representatives of community or civil rights organizations.

This skill may be demonstrated by paid or volunteer work experience or educational experiences that involved working contacts with men and women of different races, ethnic origins, and persons who hold both high and low positions in organizational or institutional hierarchies. Many kinds of public contact work may demonstrate this skill from working as a receptionist to serving as a recreational assistant.

Requirements for GS–7

Applicants must meet the requirements of A, B, C, or D below:

A. One year of satisfactory performance in a GS–5 or equivalent trainee position in any line of work that leads to the performance of analytical, interpretative, and judgmental work (e.g. two-grade interval work in the General Schedule).

OR

B. Two years of experience doing technical assistance work (one-grade interval work in the General Schedule, or equivalent):
   (1) that is *closely related* to the position to be filled such as work typical of the Equal Opportunity Assistance Series, GS–361. (See the position classification standard for that series.); and
   (2) that is equivalent in level of difficulty to GS–5 or above in the General Schedule.

OR

C. Superior Academic Achievement as defined in Part II, Section III of this Handbook.

OR

D. One full academic year of graduate study in any field or one academic year leading to a *Bachelor of Law* or *Doctor Juris* degree.

The total creditable experience or education described in A, B, C, or D above must have demonstrated possession of all of the skills required for GS–5 (above). However, possession of higher levels of these skills will have been more clearly demonstrated by concrete work accomplishments, post-graduate education achievement, or unusual scholarship.

Requirements for GS–9.

Applicants must meet the requirements of A or B below:

A. One year of experience involving work of an analytical nature at the GS–7 or equivalent level in civil rights or a related field such as political science, economics, law, sociology, education, or other field related to the position to be filled.

OR

B. Two full academic years of graduate study, or completion of all requirements for a master's degree, or equivalent degree in an academic field or fields directly related to the position being filled, or completion of two academic years leading to a *Bachelor of Law* or *Doctor Juris* degree. (See *Graduate Education.*)

The creditable experience or education described above *must* have demonstrated possession of the following:

1. *Developed skill in writing.* This includes skill in organizing, writing, and proofing written material in a variety of formats including narrative reports, memoranda, and letters for a variety of audiences; skill in organizing principles, concepts, and facts in a logical manner appropriate to the subject and the intended audience; and skill in presenting the material clearly, accurately, and concisely.

   This skill may be demonstrated by:

   a. experience in a position which required regular assignments to write in a vari-

ety of formats for diverse audiences including investigations, research work, public information work, newspaper reporting, position classification, or any of a wide variety of similar positions in the General Schedule, or other equivalent positions outside the General Schedule;

b. a college undergraduate major or minor in English, journalism, or similar fields;

c. several graduate courses in English, journalism, or similar fields; or

d. other equivalent demonstrations of skill in writing.

2. *Developed skill in investigating and analyzing problems.* This includes skill in identifying the most appropriate sources of information; skill in obtaining information by referencing library sources, files, or other documents; skill in interviewing or questioning persons to obtain or clarify facts and opinions, to identify issues or problems, to develop working hypotheses, to select and use an appropriate analytical technique, to identify and evaluate relevant facts to draw reasoned conclusions, or to clearly present and defend findings in writing or orally.

This skill may be demonstrated by:

a. experience in a position which required this skill such as equal opportunity complaint investigating, management analysis, social science analysis, position classification, computer systems analysis, or a wide variety of similar kinds of work;

b. undergraduate or graduate education in the social sciences, physical sciences, engineering, or other fields that demonstrated this skill; or

c. other equivalent experience or education that demonstrated this skill.

3. *Research skill.* This includes skill in conducting documentary and field research. It involves searching, evaluating, and analyzing reference materials, identifying and obtaining information through surveys, questionnaires, or interviews, developing and testing hypotheses, and selecting and using appropriate research tools.

This skill may be demonstrated by education that included the preparation of one or more research papers equivalent to a master's thesis, or equivalent research work in government or the private sector.

4. *Knowledge of the causes and operation of social and institutional barriers to equal opportunity and civil rights in a relevant area e.g., employment, housing, education, voting rights, etc.* Knowledge of the principles and methods of inquiry of social science or of the field directly related to the work to be performed e.g., employment, urban planning, education, etc.

This knowledge may be demonstrated by work experience or graduate education in the directly related discipline or occupation.

Requirements for GS–11.

Applicants must meet the requirements of A or B below:

A. One year of experience at GS–9 or equivalent level performing analytical, interpretive and judgmental work in civil rights, or equal opportunity, or other field that involved work directly related to the position to be filled (e.g., political science, sociology, history, economics, law, or other related field).

OR

B. Completion of all of the academic requirements for a doctoral degree in a field directly related to the position to be filled. (See *Graduate Education.*)

The total creditable experience or education described in A or B above must have demonstrated:

1. *Research skill.* This includes skill in conducting documentary and field research. It involves searching, critically evaluating, and analyzing reference materials; identi-

fying and obtaining information through surveys, questionnaires, or interviews; developing and testing hypotheses; developing and using research tools; and clearly communicating the results in writing. This includes skill in using social science research tools and evaluating existing research to produce a unique research product.

This skill may be demonstrated by completion of a doctoral dissertation, journal articles, or private or government research that produced new knowledge.

2. *Knowledge of the causes and operation of social and institutional barriers to equal opportunity and civil rights in a relevant area e.g., employment, housing, education, voting rights, etc.* This includes indepth knowledge of civil rights, a social science discipline, an interdisciplinary area, or other field directly related to work of the position. This includes a thorough knowledge of institutional behavior patterns that can be related to studies of discrimination.

   This knowledge may be demonstrated by substantive experience working in the field, by performing research in the field, or by teaching in the field (e.g., work in planning for labor negotiations and administering labor agreements for positions concerned with equal opportunity in employment or in union membership).

Requirements for GS–12 and GS–13

Applicants must have at least one year of experience performing work equivalent to the next lower grade that demonstrated possession of the following:

1. *Research skill.* This includes skill in conducting documentary and field research. It involves searching, critically evaluating, and analyzing reference materials; identifying and obtaining information through surveys, questionnaires, or interviews; developing and testing hypotheses; and developing and using research tools.

   This also includes skill in planning and conducting research in the social sciences, business, employment, or other relevant fields and skill in applying research techniques.

   This skill may be demonstrated by research work that included presenting scholarly papers at conferences, supervising doctoral dissertations, publishing innovative research in journals, or equivalent work in government, industry, or educational institutions.

AND

2. Knowledge of one or more civil rights areas such as voting rights, equal education, equal employment, or similar areas or knowledge of a discipline directly related to the problems to be studied. The required quality of knowledge at these levels is such that the applicant is able to make authoritative findings and conclusions and policy recommendations concerning sensitive national civil rights problems and issues.

Requirements for GS–14 and above.

Applicants must have at least one year of experience performing work equivalent to the next lower grade that demonstrated possession of the following:

1. *Expert research skill and knowledge.* Recognized expert knowledge and skill in designing, planning, conducting, and evaluating social science research and defending results. This includes mastery of a wide range of social science research methods and techniques and skill in applying them to a variety of problems and adapting them to meet specialized research needs. This also includes recognized skill in the overall design of research studies to meet the highest standards of scientific inquiry.

AND

2. Expert knowledge of an academic field or interdisciplinary area sufficient to conduct advanced research and make and defend

authoritative recommendations concerning national policies related to specific civil rights issues.

GRADUATE EDUCATION

Graduate education is considered directly related to the position being filled *only* if it demonstrated possession of the knowledges and skills needed for successful performance of the essential work of the position. However, the graduate study may be supplemented by other education, training, or experience which as a whole demonstrated ability to do the essential work of the position.

Examples of fields of graduate education that may satisfy the requirements for positions at GS–7, or GS–9, or GS–11 may include: Political Science, Civil Rights, the Social Sciences, Law, Housing, Education, Urban Affairs, Public or Business Administration, Labor Relations, Personnel, Economics, History or others as required.

SELECTIVE PLACEMENT

Because of the broad range of studies conducted by civil rights analysts, selective factors may be appropriate for filling many positions. Job related selective factors may be constructed in these cases. Spanish speaking skill is an example of a selective factor that may be used for positions in this series at any grade level where appropriate. At higher grade levels (e.g., GS–11 and above), selective factors may be used to restrict consideration to applicants with knowledge directly related to the issue areas to be studied.

PHYSICAL REQUIREMENTS—ALL LEVELS

Applicants and employees must be physically and mentally able to perform efficiently the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

SUPERVISORY POSITIONS

Use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X–118 in conjunction with this standard.

BASIS OF RATING

All candidates will be rated on a scale of 100. The basis of rating will be an evaluation of the candidate's experience, education, and training in relation to the duties of the position to be filled. Work experience and relevant course work above the minimum required for a particular position at a particular grade level will be considered in ranking qualified applicants based on the relatedness of the work experience or courses to the position's required knowledges and skills. Rating will be based on statements in the application form, any supplemental information forms, and any additional evidence received. A written test is not required.

Candidates should be ranked in relation to the "fit" between their specific areas of knowledge and the specific knowledges necessary to

understand and perform the work of the particular position being filled. Candidates for positions at GS–9 and above also should be ranked according to the quality of their substantive accomplishments, especially their research products.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For positions requiring operation of a motor vehicle, applicants must either hold, or obtain within 30 days of employment, appropriate State and U.S. Government motor vehicle operator's permits.

Historian GS–5/15

DESCRIPTION OF WORK

Employees in this series plan and carry out research or other professional historical work. They employ established professional methods and techniques in locating and evaluating historical evidence, establishing historical facts, analyzing historical facts, determining their interrelationships, and presenting the results of their study in written form. These studies are used (1) as background information relating to current problems for use by agency officials and others in developing or modifying policies and programs, (2) as continuing studies to record the policies, programs and operations of the agency, (3) as scholarly narrative or documentary histories for publication, or (4) as studies to be used in connection with the establishment, conservation, restoration, reconstruction and interpretation to the public of sites of major significance in the military, political, economic and cultural history of the United States. (For a fuller discussion of the occupation see the classification standards for the History Series, GS–170.)

BASIC REQUIREMENTS FOR ALL GRADES

For all grade levels a minimum of 3 years of general experience is required. General experience is administrative, investigative, or technical work in history, political science, international law or international relations or similar fields which has required the ability to deal effectively with individuals or groups of persons; to collect, assemble and analyze pertinent facts; and to prepare clear and concise written reports.

For all or part of the required 3 years of general experience, applicants may substitute successfully completed study in an accredited college or university at the rate of 1 year of academic study for 9 months of experience, provided such study has included or been supplemented by an average of 6 semester hours per year in, or directly related to, history.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in the fields of history, political science, international law or international relations, foreign affairs, or directly related fields.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

QUALITY OF EXPERIENCE REQUIRED

The experience must have included (1) planning, coordinating or directing all or major parts of research projects that involved the use of historical research methods; (2) providing professional advice on research, presentation, publication or other major activities of important research programs that involved the use of historical research methods; (3) performing professional historical research and writing; or (4) performing responsible curatorial work on museum collections involving the use of historical research methods.

For positions in GS–12 and above, the experience must have included at least one of the following: (a) responsibility for direction and coordination of research, (b) planning of research activities, or (c) specialized individual research at a high level of difficulty and responsibility.

For all levels, experience in teaching college-level courses in fields listed above will be accepted as qualifying specialized experience provided such teaching included or was supplemented by individual historical research comparable to that described under the statement

of duties, or by the direction of historical research projects.

The factors listed below will be considered in making determinations on the required quality of specialized experience in relation to the level of difficulty of the position under consideration:

1. Research skill in terms of ability to collect and evaluate historical data, to absorb and synthesize quantities of information, and to draw logical interpretive conclusions.

2. Skill in the use of research tools such as library holdings, archives, foreign languages, photographs, statistics, maps, etc.

3. Ability to write well and concisely, to express thoughts clearly, and to develop ideas in logical sequence in studies and other types of reports, instructions, guides, etc.

For positions involving oral presentation abilities:

4. Ability to convey ideas fully and accurately through discussions, lectures, briefings, etc.

NONQUALIFYING SPECIALIZED EXPERIENCE

1. Historical fiction writing, or compiling reports, or other writing unless it demonstrates the ability to employ successfully the methodology and techniques of professional historical research.

2. Clerical and correspondence writing.

QUALIFYING FIELDS OF GRADUATE EDUCATION

Graduate study in the fields of economics or literature may also be credited, when such study has included training in historical research methodology or the dissertation relates to economic or literary history and required the use of professional historical research methodology and techniques in its preparation.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

WRITTEN TESTS

An appropriate written test is required for all positions at GS–5 and GS–7. The written test should be waived for in-service placement actions but not for appointments outside the register.

No written tests are required of applicants at the GS–9 level and above.

BASIS OF RATING

For grades GS–9 and above, applicants will be rated on a scale of 100 on the quality and extent of their experience, education, and training in relationship to the duties of the positions. Such ratings will be based upon applicants' statements in their applications and upon any additional evidence received by the Commission.

SELECTIVE PLACEMENT

All historian positions share the requirement for knowledge of historical research methodology. However, because of the range of subject matters with which historian positions may be concerned, and the variety of programs in which such positions exist, some positions in this series require additional specialized subject-matter knowledges such as: (1) one or more periods of United States history, or the history of other nations, (2) history of political science, economics, science and technology, agriculture, or other special field, (3) international relations and foreign affairs, (4) military science, e.g., the concepts, organization and operations peculiar to the military profession, or (5) one or more foreign languages. These requirements vary significantly from position to position. In the interest of providing maximum flexibility in matching the qualifications possessed by historians to the actual requirements of individual jobs, each situation should be evaluated on its

individual merits. Those positions which require recruitment or appointment of persons with a background or experience in one or more of the specialized areas mentioned above should be filled by selective placement. Selective placement should be used only in those cases in which it is absolutely essential that the selection of persons to fill the position be limited to those having intensive knowledge or experience in the specialized areas involved.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2; in addition, applicants must possess emotional and mental stability.

PSYCHOLOGY SERIES [1]

For positions in the Psychology occupation GS–180, grades GS–5/15

Clinical Psychologist

Counseling Psychologist

Personnel Psychologist

Engineering Psychologist

Psychologist

DESCRIPTION OF WORK

Psychologists engage in professional research or direct services work relating to the behavior, capacities, traits, interests and activities of both human and animal organisms. This work may involve: (1) Developing scientific principles or laws concerning the relationship of behavior to factors of environment, experience, or physiology, or to develop practical applications of findings; (2) applying psychological principles, theories, methods, or data to practical situations or problems; and (3) providing consultative services or training in psychological principles, theories, methods, and techniques.

Information regarding specializations and typical patterns of work assignments is contained in the position-classification standard for the Psychology Series, GS–180.

EDUCATION AND EXPERIENCE REQUIREMENTS

All professional psychologist positions require at least completion of a bachelor's degree. Clinical psychologists and counseling psychologists have additional education requirements. The basic minimum requirements for all psychologist positions are stated below.

BASIC EDUCATIONAL REQUIREMENTS

Candidates for these positions must meet the minimum education requirements appropriate to the specialization in which the position is classified. These are:

A. *Clinical psychologists*

For positions in grades GS–11 and above, satisfactory completion in an accredited educational institution of all the requirements for the doctoral degree (Ph. D. or equivalent) directly related to full professional work in clinical psychology, is required.

B. *Counseling psychologists*

For positions in grades GS–9 and above, satisfactory completion in an accredited educational institution of 2 full academic years of graduate study directly related to professional work in counseling psychology, or satisfactory completion in an accredited educational institution of all the requirements for a master's degree directly related to counseling psychology, is required.

C. *Psychologists in all other specializations*

For positions in grades GS–5 and above, completion of a full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree, including or supplemented by a total of 24 semester hours in psychology, is required.

→SPECIAL LICENSURE REQUIREMENTS FOR CERTAIN POSITIONS IN THE DISTRICT OF COLUMBIA

In accordance with the Practice of Psychology Act (PL 91–657) all psychologists employed in the District of Columbia whose work assignments involve the practice of psychotherapy (as defined in the law) must obtain or possess a current, valid license to practice psychology in the District of Columbia.←

ADDITIONAL REQUIREMENTS

Candidates for professional psychology positions must have had either professional experience or graduate education as specified below. Such professional experience or graduate education must have been in a specialized area directly related to the requirements of the position to be filled.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

[1] This standard supersedes the standard for this series which was issued in January 1969.

The requirements for each grade level are:

GS–5: Candidates must meet the basic education requirements described in (C) above. No additional education or experience is required.

GS–7: In addition to the basic minimum educational requirement specified in (C) above:

(1) One full academic year of graduate study which is acceptable toward a master's or higher degree in psychology, *or*

(2) One year of experience in psychological work which included the supervised application of basic principles and techniques of psychology, *or*

(3) Any equivalent combination of education and experience.

The requirements of the standard for Superior Academic Achievement for GS–7 in section 3, part II of this handbook, apply.

GS–9: *Counseling psychologist*

Candidates must meet the basic education requirements described in (B) above. No additional education or experience is required.

Psychologists in all other specializations, except clinical and counseling

(1) Two full academic years of graduate study which is creditable toward the requirements for an advanced degree in psychology, *or*

(2) Two years of experience in psychological work which included the application of psychological principles and techniques. This experience must have provided clear evidence that the candidate possesses the specialized knowledges and abilities required for the successful performance of the work of the position to be filled, *or*

(3) Completion of all the requirements for a master's degree directly related to the specialty area of the position to be filled, *or*

(4) Any equivalent combination of education and experience.

A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying. Typically, 30 semester hours (or equivalent) of part-time graduate study may be credited as 1 full academic year of graduate education.

GS–11: *Clinical psychologist*

Candidates must meet the basic education requirements described in (A) above. No additional education or experience is required.

Counseling psychologist

(1) Completion of the education requirements described in (B) above, *and* at least 1 year of professional experience in which the candidate has demonstrated the knowledges, skills, and abilities needed for educational, vocational, or rehabilitation counseling, *or*

(2) Satisfactory completion, in an accredited college or university, of all the requirements for a doctoral degree (Ph. D. or equivalent) directly related to counseling psychology.

Psychologists in all other specializations

(1) Satisfactory completion, in an accredited college or university, of all the requirements for a doctoral degree (Ph. D. or equivalent) in psychology directly related to the requirements of the position to be filled, *or*

(2) Three years of professional experience in which the candidate has demonstrated the knowledges, skills, and abilities required for the successful per-

formance of the work of the position to be filled, *or*

(3) Any appropriate combination of education and experience.

For *research* positions in all specializations *except clinical*, completion of all requirements for a master's or equivalent degree based on at least 2 full academic years of graduate study when—

a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature.
b. The knowledges required for the work are *typically and preferably* acquired through graduate study.
c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.

GS–12: All Specializations

In addition to the requirements for GS–11 appropriate to the specialization of the position, 1 year of appropriate professional experience is required.

For *research* positions in all specializations, completion of all the requirements for a doctoral degree (Ph. D. or equivalent) is qualifying for appointment to positions that meet the following criteria:

a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature.
b. The knowledges required for the work are typically and preferably acquired through graduate study at the doctoral (Ph. D. or equivalent) level.
c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

GS–13/15: All Specializations

For each successively higher grade a correspondingly higher level and quality of experience is required. This experience must demonstrate clearly the candidate's ability to perform the work of the position being filled.

QUALITY OF EXPERIENCE

For positions at any grade, the required amount of experience will not in itself be accepted as proof of qualification for a position. The candidate's record of education and experience must clearly demonstrate that he has the ability to perform the duties of the position. The primary consideration is the quality and level of experience.

For eligibility at grades GS–7 through GS–11 at least 1 year of the required qualifying professional experience must have been comparable in difficulty and responsibility to the second lower grade in the Federal service. For eligibility at GS–12 and above, at least 1 year of the required qualifying professional experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service.

SUPERVISORY POSITIONS

For supervisory positions see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

BASIS OF RATING

No written test is required for any position in this occupation. Candidates will be rated on the basis of their education, training, experience, and personal qualifications in relation to the requirements of the specific positions for which they are being considered. Ratings will be based on competitors' statement in their applications and on any additional evidence that may be secured through qualifications inquiries.

INTERVIEW REQUIREMENTS

Mature judgment and skill in interpersonal relationships is critically important to the suc-

cessful accomplishment of the work in many psychologist positions. Accordingly, candidates may be required to appear for a preemployment interview to assist in evaluating such skills.

GUIDE FOR EVALUATING QUALIFICATIONS

The evaluation of the psychologist's training, experience, skill, and ability is crucial to effective staffing. This evaluation is complicated by the fact that patterns of individual professional growth and development and the specific requirements of individual positions vary widely. Thus, particular care must be exercised in the appraisal of the education and experience offered by candidates for these positions.

Courses covering the same theoretical concepts or principles do not always bear the same major field or course titles. Similarly, not all course work within a broadly defined specialty field of psychology is necessarily relevant to the requirements of specific positions in that specialty field. For example, candidates with course work in social, clinical, or experimental psychology together with courses in counseling psychology may fully meet the basic educational requirements for counseling psychology positions.

Candidates offering academic preparation in higher mathematics, engineering, or the physical sciences in addition to courses in psychology, may have had excellent preparation for engineering psychology positions. Similarly, some candidates may offer additional courses in such fields as sociology, anthropology, or linguistics which may be particularly germane to the specialized demands of the individual position to be filled, or to target positions in the career ladder. Such additional preparation should be taken into account both in the appraisal of the overall breadth and quality of the candidate's education and in filling particular specialized positions.

For direct services or training positions, certification as a Diplomate by the American Board of Examiners in Professional Psychology should be given appropriate weight in assessing the overall background of post-doctoral training and experience.

Where possible, evaluation of the candidate's background should be made in consultation with psychologists of high standing in their field who have had some training in examining qualifications and appraising the significance of scientific achievement. To aid in this evaluation, applicants should furnish concise summaries of the substance of their course work as well as course titles. They should also provide clear and concise information about their professional work assignments. This information should describe the nature of the professional problems they have been called upon to solve and their contribution to the problem-solving process.

SELECTIVE PLACEMENT

In considering candidates for placement it is important to bear in mind that the boundaries between specialized areas of work in the field of psychology are not absolute. Thus, education or experience gained in one specialized area may be directly relevant to the requirements of a position classified in a different speciality field. The paramount consideration is the extent to which the psychologists' total background of education and experience meets the actual requirements of the position to be filled. It is often necessary to look beyond course titles and position titles to assess this relevance.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 1; in addition, some positions may be suitable for the deaf. Applicants must also possess emotional and mental stability.

(TS–122)
January 1969
Reprinted without change
April 1978 (TS–165)

PSYCHOLOGY AID AND TECHNICIAN SERIES

Psychology Aid, GS–4
Psychology Technician, GS–5/9

Description of work

Psychology Aids and Psychology Technicians perform nonprofessional technical work in connection with a program of research or direct services in psychology. They use a practical understanding of some of the principles, methods, and techniques of psychology to carry out their duties in assisting professional psychologists.

Experience

Years of Experience Required

Grade	General (years)	Specialized (years)	Total (years)
GS–4	1½	½	2
GS–5	1½	1½	3
GS–6	1½	2	3½
GS–7	1½	2½	4
GS–8	1½	3	4½
GS–9	1½	3½	5

General experience

For any grade, experience must have been acquired through work which has provided training and experience in the observation of, and assistance in, application of techniques characteristic of work which relates to behavior, capacities, traits, interests, and activities of either humans or, under laboratory conditions, of animals. For positions involving statistical or graphic work, experience involving simple graphics or substantial arithmetic involving following some routine statistical formulae is acceptable, as is experience collecting data to assist a psychologist or statistician.

Specialized experience

The specialized experience required must have been in connection with a program of research or direct services in psychology which gave a practical understanding of some of the principles, methods, and techniques of psychology needed to assist professional psychologists. For technician positions at grades GS–7 and above, at least 1 year of the specialized experience must have been in the specific type of psychology program (for example, engineering psychology laboratory) in which the position to be filled is located.

Quality of experience

For all grades, at least 6 months of the experience must have been at a level of difficulty comparable to the next lower grade or, 1 year at a level comparable to the second lower grade in the Federal service.

Substitution of education for experience

A. The successful completion of a full 4-year or senior high school curriculum may be substituted for 6 months of the general experience requirement.

B. The successful completion of a full 4-year or senior high school curriculum which has included a combination of at least six ½-year courses in psychology, biology, physics, and/or algebra, trigonometry, or other mathematics courses (excluding general science) may be substituted for 1 year of the general experience requirement. High school study may not be substituted for any part of the specialized experience required at any grade.

C. Successfully completed study in an accredited college or university which averaged at least 6 semester hours per year in psychology and statistics may be substituted for the required general and specialized experience on the basis of 1 academic year of study for 9 months of experience, except that the total substitution of education (high school and college) for experience may not exceed 3 years.

Basis of rating

Applicants will be rated on a scale of 100 on the basis of an evaluation of their experience, education, and references.

Physical requirements

See part II, Physical Requirements, paragraph 3; in addition, some positions may be suitable for the deaf.

P.R. Codes: A–1, 3; B–1, 2, 3, 4, 5, 6, 7, 8; C–1, 2, 3; D–1; E.

Sociologist
Supervisory Sociologist GS–5/15

DESCRIPTION OF WORK

Sociologists employ established sociological methods and techniques to perform professional work which relates to (*a*) the culture, structure, or functioning of groups, organizations or social systems; (*b*) the relationships between groups, organizations or social systems; (*c*) collective human behavior in social situations; (*d*) demographic characteristics and ecological patterning of communities and societies. Sociologists work on studies which require a professional knowledge of sociology, sociological theory and methods of social research. Sociologists also interpret research results, develop the implications of research for policy and administer programs making use of research results.

BASIC REQUIREMENTS FOR ALL GRADES

Candidates for all positions in this series must have successfully completed the basic requirements of A or B below:

A. A full 4-year course in an accredited college or university leading to a bachelor's or higher degree which included or was supplemented by at least 24 semester hours of sociology, with course work including theory and methods of social research.

B. Courses in an accredited college or university consisting of 24 semester hours in sociology with course work including theory and methods of social research, plus additional appropriate experience or education which, when combined with the specific course work, will total 4 years of education and experience and give the applicant a technical knowledge comparable to that which would have been acquired through the successful completion of the 4-year college course described in "A" above.

GS–5.—The basic requirements which apply to all grades are fully qualifying for GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, sociology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter field*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.

GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree based on at least 2 full academic years of graduate study when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

WRITTEN TEST

A written test is required for all positions at GS–5 and GS–7. The written test should be waived for in-service placement actions, but not for appointments outside the register.

No written tests are required of applicants at the GS–9 level and above.

BASIS OF RATING

For grades GS–5 and GS–7, applicants will be rated on a combination of their scores on the appropriate written test plus an evaluation of their experience and training.

For grades GS–9 and above, applicants will be rated on the quality and extent of their experience, education, and training in relationship to the duties of the positions. This includes (1) progressive advancement as shown by applicants' academic records and experience, (2) the level, scope, and responsibility of applicants' present and past positions, (3) special or unique training, experience, or research in sociology and/or closely related fields, (4) publications and recognition in the form of special honors, awards, etc. Such ratings will be based upon applicants' statements in the applications

and upon any additional evidence received by the Commission.

Concise, but detailed descriptions of course work, in addition to the course title, should be furnished. Applicants should give a clear and complete description of their experience and training and the projects they have worked on that show their possession of the required knowledges and abilities for sociologist positions.

The following factors are to be applied to the applicant's experience to measure the difficulty, importance and scope of the duties performed:

(a) The demonstrated breadth and level of knowledge of sociological principles and theories.
(b) The required ability to plan and conduct technical studies in sociology.
(c) Effectiveness in establishing and maintaining good working relationships.
(d) Skill in preparing written technical reports and/or in making oral presentations of technical information.
(e) The demonstrated ability to plan, supervise, and coordinate the work of others.
(f) Career progression indicating the ability to learn and apply new techniques or adapt to new situations.
(g) The evident effect of suggestions of policy and program decisions.

The evaluation of this experience does not depend on length of service alone, since length of experience is less important than demonstrated success in positions of a responsible nature, and the breadth and scope of pertinent knowledges and abilities possessed by the candidate.

QUALIFICATION INQUIRIES

Confidential inquiries, including contacts with applicants' present and former supervisors and associates, may be made to obtain further information concerning applicants' technical and personal qualifications and general suitability for these positions.

SELECTIVE PLACEMENT

All sociology positions share the requirements for knowledge of sociological theory and methods of social research. However, because of the scope of sociological activity in Government, and the variety of programs in which such positions exist, some positions in this series may require specialized or additional knowledges such as: urban sociology, rural sociology, criminology, or statistics. These requirements vary significantly from position to position. In the interest of providing maximum flexibility in matching the qualifications possessed by sociologists to the actual requirements of individual jobs, each situation should be evaluated on its individual merits. Those positions which require recruitment or appointment of persons with a background or experience such as one or more of the specific areas mentioned above, should be filled by selective placement.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3, except that there may be a few positions which can be performed efficiently and safely by the blind with the assistance of a reader. In addition, applicants must possess emotional and mental stability.

SOCIAL WORK SERIES

Social Worker GS-7/15

Social Work Program Specialist GS-9/15

DESCRIPTION OF WORK

Social Workers perform professional social work involved in carrying out agency programs of service to people with whom they are concerned, such as patients in agency-operated hospitals and clinics, wards of child welfare agencies and their families, inmates of correctional institutions, etc.

Most positions involve direct professional services to individuals. Some positions also include working with clients in groups when appropriate, and/or working with and advising members of the community in the development of local resources to prevent or alleviate social problems. There are positions which are primarily concerned with supervision of social work staff and/or students, with directing programs of social work, or with research to improve social work practice.

Social Work Program Specialists advise on, develop, evaluate, and promote social welfare programs and services administered by State agencies and other public and nonprofit organizations and institutions. More specifically, they develop and issue material on new knowledge, set minimum standards for administration and operation of programs; evaluate the soundness and effectiveness of program administration and operation; and work with State, community, and professional leaders who are interested in strengthening service programs, etc.

MINIMUM EDUCATION REQUIREMENT

Applicants must have successfully completed a course of study in an accredited school of social work which has fulfilled all of the requirements for the master's degree in social work. The recognized accrediting association in the field is the Council on Social Work Education.

ADDITIONAL TRAINING AND EXPERIENCE REQUIREMENTS

For GS-7: No additional training or experience needed.

For GS-9: In addition to meeting the requirements for grade GS-7, applicants must have successfully completed one of the following:

A. Related practice training in professional social work during field placement as part of the graduate study. This practice training must have been of a kind and amount to provide the candidate with the knowledge and capabilities required for the position for which he is being considered; *or*

B. At least 1 year of professional social work experience under professional supervision.

For GS-11: In addition to meeting the requirements for grade GS-9, applicants must have had a minimum of →1 year← of professional social work experience under professional supervision. Experience must have demonstrated the ability to perform advanced assignments independently.

For GS-12/15: In addition to meeting the requirements for GS-11, applicants must have had a minimum of 1 additional year of professional social work experience which has demonstrated broad knowledge of the field of social work and superior skill and judgment in professional

For GS-12/15—Continued

practice. As appropriate, positions at these levels may require evidence of ability to supervise social work staff, to manage social work programs, or to perform social work research.

For program specialist positions, the experience must have included one or, in some cases, a combination of two or more functions, such as, program planning, program development, program evaluation, consultation, and cooperative community relationships in an agency providing social work service to families, children, or adults; or

Supervisory, administrative, or consultative work in a public or voluntary welfare or health agency with an organized social work program. This experience must have demonstrated the ability to analyze, evaluate, and advise on broad overall aspects of social work programs, plans, and operations, and to work effectively with representatives of other interested or affected agencies and groups in the development of program standards and requirements.

For positions with staff development responsibilities, the required experience must have included experience in planning or conducting a social work education or staff development program in a health or welfare agency, or teaching in an accredited school of social work.

For GS-12/15—Continued

QUALITY OF EXPERIENCE AND TRAINING

The number of years of experience required for any grade level represents the minimum amount of time necessary to qualify for the appropriate position, but length of time is not of itself qualifying. The applicant's work experience must also have been of a quality and scope sufficient to enable him to perform satisfactorily assignments typical of the grade level for which he is being considered. The evaluation of the applicant's performance and potentialities will be based upon information acquired through confidential inquiry of his supervisors and others familiar with the nature and quality of his work.

For positions at grade GS-9, at least 1 year of experience must have been at a level comparable in scope and difficulty to that of grade GS-7 in the Federal service; for grade GS-11, at least → 1 year ← of the required experience must have been comparable in scope and difficulty to that of GS-9; and for GS-12 and above, at least 1 year must have been comparable in scope and difficulty to that of the next lower grade.

NONQUALIFYING EXPERIENCE

Except for the substitution of supervised field training completed as part of an educational curriculum (see above), experience acquired prior to completion of all requirements for the master's degree is not considered as qualifying.

An applicant who has been out of social work practice for 10 or more years may be asked to provide additional evidence that his qualifications fully meet the requirements of competence to practice in terms of current professional knowledge and standards of practice. Such supporting evidence might be 2 years or more of successful experience before the break in practice, participation in the activities of volun-

tary social agencies and professional organizations during the interval, published articles, and similar proof of continued interest in the field.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

QUALIFICATION INQUIRIES

For all grades of these positions, confidential inquiries, including contacts with the applicant's supervisors and associates, or with other persons familiar with his qualifications, may be made to obtain further information about qualifications, character, and suitability for these positions.

SELECTIVE PLACEMENT

Some positions will require the background and approach of a particular method of practice, e.g., casework, rather than group work or community organization. For such positions, consideration may be restricted to eligibles who possess the pertinent experience and knowledge required to perform the duties of the positions covered in this occupation. At grade GS–11 and above there are some positions that require experience specifically related to such fields of practice as programs of service to medical and psychiatric patients in hospitals and clinics, programs of rehabilitation for inmates of correctional institutions, or programs for the protection of children.

For some program specialist positions, some of the qualifying experience must have provided a knowledge of specific aspects of an agency program such as foster care, work with the aging, services to unmarried mothers, community planning, volunteer services, etc.

Other positions may require experience which has provided a knowledge of one or more specific areas of child welfare, such as adoptions, foster family care, group care, day care, services to children in their own homes, homemaker service, services for mentally retarded and emotionally disturbed children, etc.

Some positions in *Medical Programs* require experience which has provided a knowledge of health and medical care social services for mothers and children, i.e., mental retardation, maternal and child health and crippled children's services, public assistance clients, etc.

Agencies requesting selective referrals must show the connection between the kind of training or experience on which they wish to base selective consideration and the duties of the position to be filled.

DRIVER'S LICENSE

For certain positions, applicants may be required to have a driver's license.

WRITTEN TEST

No written test is required. Applicants will be rated on a scale of 100 on the basis of education, experience, training, and personal qualifications in relation to the requirements of the specific position for which they are being considered. Ratings will be based upon competitors' statements in their applications and upon any additional evidence which may be secured through qualification inquiries or similar means.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. There may be a few positions in larger offices where the casework load would permit the employment of a blind person in a restricted area of activity. In addition, applicants must possess emotional and mental stability.

SOCIAL SERVICES AID AND ASSISTANT SERIES [1]

—Social Services Aid, GS–1/4
—Social Services Assistant, GS–5 and above
—Lead Social Services Aid, GS–3/5
—Lead Social Services Assistant, GS–6/7
—Supervisory Social Services Aid, GS–4/6
—Supervisory Social Services Assistant, GS–6 and above

DESCRIPTION OF WORK

This series covers nonprofessional positions in support of counseling, guidance, and related social services work in social, employment assistance, or similar programs. The persons served by the programs may be individuals or families in the community or individuals in an institution, dormitory, or other Government facility. Duties may range from work that involves group leadership and giving practical guidance on day-to-day activities to residents in a Government facility to work that involves giving unemployed adults information and assistance on community job training or employment opportunities. The work requires skill to communicate effectively and to work constructively with members of the particular group involved. The work also requires a practical knowledge of program requirements and procedures, and a practical understanding of some of the more routine methods and techniques of counseling.

This series includes four types of positions:

Type 1—Positions which involve group leadership work, typically as proctors for a group of residents in an institution, school dormitory, or other Government facility, with such duties as:

—supervising the day-to-day activities of the group in maintaining order, discipline, and safety in their quarters;
—instructing and supervising the group members in such daily activities as work details to keep their quarters in order, physical training, and recreation;
—giving practical advice and counsel to individuals on everyday problems of adjustment to the group;
—issuing clothing and supplies; maintaining progress charts and records of supplies.

Type 2—Positions which involve work that is in direct support of professional counselors or other specialists who counsel the unemployed or underemployed. The work involves such duties as:

—making contacts in the community to obtain cooperation with the program;
—contacting those individuals in the community the program is intended to serve, and advising them regarding the services and requirements for participation;
—following through to assure that the program participants meet their commitments, and to obtain periodic progress information for use of the supervisor during job training or early employment periods;
—scoring standardized tests, maintaining the necessary records, files, and occupational and referral information, and similar office work.

Type 3—Positions which involve work in direct support of the professional and related social work staff, either in and/or out of the social service office. The outside work primarily involves contacts with clients, their families, and representatives of community organizations. They perform such duties as:

—collecting specific case information from individuals and families served and from other neighborhood sources for the use of the supervisor;
—providing information to persons served about the program's services, requirements, and procedures;
—providing referral information on community resources;
—providing escort assistance for the handicapped, as needed;
—maintaining case files, referral directories, and information on community resources and similar office work pertaining to social work program.

[1] This qualification standard supersedes the standard for the Social Services Aid and Assistant Series, GS–186, issued in January 1969.

Type 4—Positions which involve assignments that regularly combine two or more types of work described above; or that fall within the series but are not covered by the specific types of positions identified above.

BASIC REQUIREMENTS

For All Grades

Applicants for all grades must demonstrate possession of the following skills:

1. Communicating effectively with members of the group served, winning their respect and confidence, and establishing and maintaining continuing constructive relationships with them;
2. Working effectively with specialists on the staff and others in helping encourage and motivate program participants;
3. Applying a practical understanding of some of the methods and techniques of counseling (e.g., how to interview to obtain or give specific information; how to observe and describe, for use of staff specialists, the participant's condition).

Requirements for GS–1

No experience required.

Requirements for GS–2

Applicants must meet the requirements of A or B below:

A. Six months of successful work experience equivalent to GS–1 or above;

OR

B. Graduation from a full 4-year or senior high school or possession of a General Education Development High School Equivalency Certificate (GED).

Requirements for GS–3

Applicants must meet the requirements of A or B below:

A. One year of successful work experience at the GS–2 or above level which involved dealing with others in such positions as sales clerk or recreation leader and which demonstrated the applicant's ability to acquire the knowledge and skills required for the position;

OR

B. Successful completion of one academic year of study in an accredited educational institution above the high school level.

Requirements for GS–4

Applicants must meet the requirements of A or B below:

A. One year of successful work experience at the GS–3 or above level as described under *Qualifying Experience for Various Position Types below*;

OR

B. Successful completion of two full academic years of study in an accredited educational institution above the high school level, provided the study (1) included subjects or fields closely related to the work of the position *or* (2) was supplemented by experience in activities which afforded the opportunity to acquire and demonstrate the skills required by the position. (The supplementary experience may have been gained, for example, in part-time or summer employment, in volunteer social welfare or recreation programs, or in community organizations.)

Requirements for GS–5

Applicants must meet the requirements of A or B below:

A. One year of successful work experience at the GS–4 or above level as described under *Qualifying Experience for Various Position Types below;*

OR

B. Successful completion of a full 4-year course of college study provided the study (1) included subjects or fields closely related to the work of the posi-

tion, or (2) was supplemented by specialized experience as described for GS–4 above.

Requirements for GS–6 and above

Applicants must have one year of successful work experience at the next lower level in work areas as described below.

Qualifying Experience for Various Position Types at GS–4 and Above

Type 1

Experience for Type 1 positions is that gained as a monitor, leader, supervisor, or instructor of a group of persons in an organized work, recreational, educational, or residential situation. The following examples show some of the kinds of acceptable experience:

—Experience as a group leader in community or residential recreation, training, or physical fitness programs.
—Experience as a counselor in a youth summer camp.
—Experience as an instructor in a training program for the development of job skills.
—Experience which demonstrated the ability to be responsible for and to lead and train members of a job crew.
—Experience in the Armed Services as a leader of group activities.
—Serving as a unit leader-monitor-proctor for a dormitory group in a boarding school or other residential facility.

Type 2

The experience for Type 2 positions must have demonstrated that the applicant has the ability to make effective community contacts, and the ability to perform successfully the related office support duties.

This experience is typically gained as an aid or assistant to professional or specialist staff in such fields of work as the following:

—Personnel work (private or government).
—Employment guidance work in a vocational or academic institution.
—Social service work.
—Manpower development work.
—Work activities directly related to any of the foregoing.

Type 3

The experience for Type 3 positions must have demonstrated that the applicant has the ability to make effective contacts with families and resources in the community, and the ability to perform successfully related office duties.

This experience is typically gained as an aid or assistant to professional or associate staff engaged in work of a social services nature, or in closely related activities, which typically was:

—In private, public welfare, or government programs.
—In community organizations.
—Or in voluntary activities.

[Note: Group leadership is *not* a requirement for support positions in either Type 2 or 3 positions. However, the examples of experience shown above for Type 1 positions can be used as evidence of the applicant's ability to deal effectively with individuals.]

Type 4

Experience for this kind of position must reflect the combination of Types 1, 2, or 3 as required by the position.

GUIDE FOR EVALUATING EXPERIENCE, EDUCATION AND TRAINING

In evaluating the experience, education, and training, particular consideration should be given to the following factors:

For all positions

—Evidence of ability to communicate effectively with the population group to be served.
—Evidence of needed personal qualities of character and empathy.
—Kind, extent, and relatedness of experience, education, or special training for the work.

For Type 1 positions

In addition to the factors for all positions:

—Evidence of ability (or potential) to work in a leadership capacity with a group.

For Types 2 and 3 positions

In addition to the factors for all positions:

—Evidence of potential to work with the community organizations involved.

—Evidence of potential to perform the related office support duties.

For all types of positions, the capacity for successful person-to-person relationships and for sensitivity and effectiveness in dealing with others needing special help (the young, the disadvantaged, the handicapped, etc.) is of overriding importance. Therefore, pertinent experience which shows capacity for effective relationships should be given a higher quality level than either education or training courses alone. Where such experience is coupled with pertinent training courses, the combination should be given appropriate high credit.

In ranking individuals, facts need to be established about the specific demands of the positions in terms of the particular needs and the age category of the group served. An applicant who has been successful in dealing with the aged might have little capacity or understanding for dealing with adolescents or young children, or vice versa. An applicant who has had successful experience in dealing with a group of normal children in a normal environment might not have the understanding or patience needed to deal with the retarded child, the delinquent, or the school dropout. Therefore, when the position requires a particular capacity for dealing with program participants with special needs, successful experience gained with a similar group in a similar kind of work setting should normally be ranked as highest quality experience.

If an applicant engaged in extracurricular activities during school years, the nature of the applicant's participation may provide evidence of the possession of the skills needed for the work. For example, leadership roles in student government, clubs, athletics, or other activities may provide evidence of effectiveness in group relationships.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the positions without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving operation of a Federal motor vehicle carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

SUPERVISORY POSITIONS

Use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X–118 in conjunction with this standard.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For those positions in which operating a motor vehicle is essential to the efficient performance of the work, applicants are required to:

—possess, or obtain within 30 days of employment, a valid State driver's license, and

—qualify, after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency. (See FPM Chapter 930.)

Social Work Associate
Social Service Representative
GS–5/15

Description of work

Persons appointed to these positions provide services to beneficiaries of social welfare programs. They obtain selected information on problems of individuals and families through interviews and home visits, verify eligibility for program benefits, provide assistance and services, give information and make referrals for medical care, vocational guidance and training, and the like, investigate social conditions in response to complaints and report findings, and perform similar functions related to the operation of a service program when such work requires the application of specialized service skills and program knowledge rather than a broad theoretical approach to social problems based on a master's degree in social work or professional education in other recognized disciplines in the social sciences.

Social Service Representatives are authorized to provide indicated services on a regular continuing basis in assignments planned for that purpose.

Social Work Associates provide similar services, but only as prescribed for individual cases by professional social workers in conjunction with professional treatment.

General requirements

For GS–5, either A, B, or C is required:

A. A full 4-year course in an accredited college or university leading to a bachelor's degree;

B. Three years of experience in technical or investigative work in a welfare activity which has required the ability to conduct interviews; to collect and analyze pertinent facts; to provide needed information, advice and practical assistance; and to prepare clear, concise personal histories and factual reports;

C. Any time equivalent combination of such education and experience.

Nonqualifying experience

The following will *not* be accepted as qualifying experience: Experience as an information clerk, receptionist, interpreter, or similar general administrative work incidental to the operation of a social welfare program which has developed familiarity with details of program activity but has not required application of the substantive knowledges, skills and abilities described in paragraph B above.

Additional experience requirements

Except for substitution of education for experience as provided for in these standards, applicants must have had, as a minimum, the length of experience specified in the following table, and of the quality described:

Grade level:	*Years of specialized experience required in addition to the requirements stated above*
GS–5	None
GS–6	½
GS–7	1
GS–8	2
GS–9	3
GS–10	4
GS–11	5
GS–12/15	6

Specialized experience

Specialized experience is progressively responsible experience required in connection with a program of direct social welfare services, which required the application of a knowledge of program policy and operations in carrying out responsibilities for providing social welfare services and/or assisting professional social workers.

Quality of experience

For grades GS–6 and GS–7, at least 6 months of the experience must have been at a level of difficulty comparable to the next lower grade, or 1 year at a level comparable to the second lower grade in the Federal service. For all grades above GS–7, up to and including GS–12, at least 1 year of the experience must have been at a level of difficulty comparable to the next lower grade, or 2 years comparable to the second lower grade in the Federal service.

Substitution of education for experience

Successful completion of 1 year of graduate study in an accredited school of social work may be substituted for 1 year of the specialized experience.

Written test

A written test is required for positions at grades GS–5, GS–6, and GS–7. The test may be waived for all noncompetitive actions but not for appointments outside the register. No written test is required for positions above grade GS–7.

Basis of rating

For GS–9 and above, applicants will be rated on a scale of 100 on the extent and quality of their experience and training in relation to the requirements of these positions. The rating of experience will be based upon applicants' statements in their applications and upon any additional evidence acquired by the Commission.

Personal qualities

Persons selected for appointment should be suited in personal qualities and temperament for this type of work. They should have a sense of responsibility, initiative, respect for clients and colleagues, and a desire to help people. They must possess sound judgment and sympathetic insight in dealing with those they serve, patience in accommodating to the behavior of others, and adaptability to discipline.

Interview

Candidates may be required to appear for an interview conducted for the purpose of evaluating personal qualities essential to the effective performance of the duties of the position.

Physical requirements

See part II, Physical Requirements, paragraph 3. There may be a few positions in larger offices where the casework load would permit the employment of a blind person in a restricted area of activity. In addition, applicants must possess emotional and mental stability.

Driver's license

For certain positions, applicants may be required to have a driver's license.

Special Note

This qualification standard has been developed as a result of the establishment of a revised definition of the GS–187 series as the Social Services Series. The series is defined to be a companion series to the Social Work Series, GS–185 which is a professional series with minimum education requirements. Very limited information is available now on specific assignments that will be included in the new Social Services Series.

RECREATION SPECIALIST SERIES[1]

Recreation Specialist GS–5/15
(all specializations)

DESCRIPTION OF WORK

Recreation specialist positions require a thorough general knowledge of the goals, principles, methods, and techniques of the broad field of recreation, and a good understanding of the recreation and leisure interests and motivations of individuals and groups. Recreation specialists plan, organize, advise on, assess, and administer recreation programs designed to stimulate and sustain the interest of participants, and to contribute to their physical, creative, and social development and well-being.

Many recreation specialists plan and carry out recreation programs which require an additional but subordinate knowledge of a speciality area such as outdoor activities, senior citizens recreation, or youth activities.

For all recreation specialist positions in the specializations described below, the *primary* requirement is a knowledge of the general principles and techniques of recreation. The additional knowledges and skills required for positions in the following specializations are subordinate to such primary knowledge requirement. These are:

—*Institutional.*—A knowledge of the special recreational needs of residents of Federal institutions, such as, inmates of Justice Department correctional institutions and students in Bureau of Indian Affairs boarding schools. Also in this specialization are those few full-time positions in hospitals, homes, and other Federal medical facilities that are responsible for recreation activities of a diversional nature and which are separate from medically prescribed and medical team oriented therapeutic recreation activities. Recreation within these settings ranges from standard and adapted sports to hobbies and handcrafts, a variety of social activities, and cultural and educational enrichment projects.

—*Outdoor Activities.*—A knowledge of the principles and techniques of evaluating, developing, and promoting the sound use and conservation of natural resources for outdoor recreation activities. In a typical community, activities may include water sports (fishing, swimming, boating, waterskiing, etc.); horseback riding, camping, hiking, and biking; archery, skeet shooting, and hunting; roller skating and ice skating. Training in outdoor recreation safety and conservation is also involved in this specialization, with the broad objective of assuring outdoor recreation activities and services which are not only personally satisfying, but which are in harmony with and conserve the natural resources used.

—*Community Activities.*—A knowledge of the particular recreation interests and needs of special communities (e.g., the young, uniformed adults of a military establishment and their wives, or members of an urban civilian community) in order to provide activities designed to appeal to such interests and to meet such needs. Activities must encourage creative self-expression, promote constructive use of leisure time, and facilitate cultural and social growth and enjoyment. Activities include, but are not limited to, minor sports and various physical fitness activities; social dances and social dance lessons; parties and picnics; lessons, games, and tournaments in such table games as bridge, chess, bingo, billiards, and ping-pong; sightseeing tours and travel; movies and TV; lectures and discussion groups; sewing and knitting classes; reading and educational activities such as creative writing and language instruction; hobby and special interest clubs; exhibits, contests, and games of chance; and various programs and activities designed to promote ethnic awareness and racial understanding including festivals, exhibits, and contests.

[1] This standard supersedes the standard for the GS–188, Recreation Specialist Series, which was issued in April 1970.

—*Senior Citizens Activities.*—A knowledge of the special recreational interests and needs of older persons in order to plan and carry out recreational activities and services designed to appeal to such interests and to meet such needs. Activities foster the constructive use of leisure time and promote a sense of purposeful and pleasant community involvement. Within the resources of a community center which caters to all age groups in the area, or as a specialized program within a recreation department, a variety of recreation activities may be offered, including special physical fitness programs, table games, shopping trips and outings, music and singing, dances and parties, hobbies and handcrafts, and special interest groups and projects.

—*Youth Activities.*—A knowledge of the special recreational interests and needs of children and young people and the ability to plan and carry out recreational activities and services designed to appeal to such interests and to meet such needs. Activities foster the constructive and meaningful use of leisure time, improve mental and physical well-being, and promote social and cultural development in the areas of leadership abilities, self-reliance, team attitudes, sportsmanship, self-esteem, and social responsibility.

BASIC REQUIREMENTS FOR ALL GRADES, GS–5 AND ABOVE

As a basic requirement, applicants must have education or experience as described under either A, B, or C below:

A. A full 4-year course in an accredited college or university with major study in one or more of the appropriate fields of recreation (e.g., recreation, outdoor or natural resources recreation, recreation planning, recreation administration, recreation leadership, recreation services, recreation management, public or community recreation, youth recreation, special populations recreation, leisure education, or urban recreation);

OR

B. Three years of experience in which candidates have demonstrated a knowledge of the goals, principles, methods, and techniques of recreation, and an understanding of the interests and motivations of individuals and groups equivalent to that which they would have gained through the education described in A above. This experience may have been gained in community, industrial, institutional, or other recreation programs, such as those sponsored by national youth organizations;

OR

C. Any equivalent combination of A and B above, provided each year of education has included at least 9 semester hours appropriate to the general field of recreation or to the recreation specialization in which the position is classified. Appropriate education may be substituted for experience on the basis of 1 year of academic study comprising 30 semester hours or 45 quarter hours for 9 months of appropriate experience.

The total creditable education and/or experience described in A, B, or C, above, *must* have given candidates demonstrated possession of the following:

—General knowledge of the basic goal, principles, methods, and techniques of the broad field of recreation.

—General knowledge of the recreation and leisure interests and motivations of individuals and groups.

These general knowledges of the field of recreation should enable candidates to learn and apply the methods and procedures of a recreation program specialty area (such as, youth recreation activities, community recreation activities, recreation programs for the institutionalized and for the older adult community, or outdoor activities).

RELATING EDUCATION AND EXPERIENCE TO RECREATION PROGRAM SPECIALIZATIONS IN MEETING BASIC REQUIREMENTS

A. *Education*

Some degree programs in recreation are more appropriate to one or more of the recreation program specializations in this series than to others. For example:

Undergraduate Degree	*Appropriate Specialization*
Outdoor Recreation	Outdoor Activities
Recreation and Parks Leadership	Outdoor Activities
Wildland Recreation Management	Outdoor Activities
Natural Resources Recreation	Outdoor Activities
Youth Recreation	Youth Activities
Public/Urban/or Community Recreation	Community Activities
Special Populations Recreation	Youth Activities Community Activities Senior Citizens Activities Institutional

When a degree program in recreation is more general and, thus, cannot be so easily identified in relation to one or more of the 5 specializations in this series, 15 semester hours of the course work of a successfully completed four year degree program in recreation should be appropriate to the recreation specialization for which the person is applying. Examples of these more general recreation degree programs are those in recreation planning/administration/leadership/services/or management; or leisure education/studies/management/or services.

In determining whether an applicant has the required 15 hours of appropriate specialized course work, the following are *examples* of the many varied courses which are appropriate to the 5 specializations in this series:

Undergraduate Course	*Appropriate Specialization*
Recreation/Leisure and the Disadvantaged Recreation and Rehabilitation Recreation for Special Populations/Groups Leisure Services for Special Populations Recreation in the Minority Community Relationship Between Drugs and Leisure Time Recreation Activities in Prisons Institutional Recreation Orientation to Rehabilitation Settings Recreation Workshops in Prisons and Detention Centers Recreation Workshops for Development of Skills in recreation activities appropriate to institutional settings, such as, Social Recreation/Leisure Crafts/Music and Dance/Etc. Field Practicum and/or Internship tailored to this specialization.*	INSTITUTIONAL (Prisons, correctional institutions, boarding schools)

Undergraduate Course	*Appropriate Specialization*
Natural Resources Administration/Conservation Outdoor Recreation/Education/Activities/Management/Principles/Concepts and Issues Introduction to Recreation and Parks Wilderness Recreation Management Facilities/Equipment in Recreation and Park Areas Outdoor Living Skills/Leadership/Techniques/Activities/Crafts Survey of Outdoor Recreation Site Planning/Design/Development/and Maintenance Ecology/Resource Ecology and Man Recreation Use of Natural Resources/Areas Problems and Trends in Outdoor Recreation Interpretative Techniques in Outdoor Recreation Outdoor Education and Camp Counseling Wilderness Camping/Survival Camping and Outdoor Education/Recreation/Leadership Aquatic Leadership Water Resources Recreation Nature Recreation Ornithology Public Relations in Natural Resources and Recreation Survival Skills/Outdoor Recreation Safety Recreation in the Natural Environment Recreational Use of Public Lands Camp Management Dynamics of Outdoor Recreation Human Development in Outdoor Recreation Development of Nature Oriented Areas and Facilities Recreation Workshops for Development of Skills in Outdoor Recreation Activities such as Canoeing/Trap and Skeet Shooting/Aquatics/Sailing/Camping/Etc. Field Practicum and/or Internship tailored to this specialization.*	OUTDOOR ACTIVITIES

Undergraduate Course	*Appropriate Specialization*
Recreation for Special Populations/Groups Introduction to/Organization of/Administration of Community Activities Community Structure and Analysis Recreation and Leisure in Barrio and Ghetto Management of Recreation Centers Urban Sociology/Recreation Recreation and the Community Recreation in Urban Settings/to Meet Urban Needs Recreation in the Minority Community Commercial Recreation	COMMUNITY ACTIVITIES (urban community, recreation, and neighborhood centers, and military recreation/community centers)

Undergraduate Course	*Appropriate Specialization*
Relationship Between Drugs and Leisure Time Community Recreation Organization/Planning Inner City Recreation Leisure in the Inner City Psychology of Recreation and Leisure in the Inner City Community Relations in Recreation/Recreation and Community Organizations Recreation/Leisure and the Disadvantaged School and Community Recreation Performing Arts/Arts and Crafts in Recreation Programming Community Sports Organizations/Community Team Sports/ Recreational Sports Supervision Recreation Skills in Social Recreation Organization and Administration of Community Recreation Programs Community Centers and Recreation/and Playgrounds Business Administration in Community Recreation Individual Lifetime Recreation Activities Recreation Workshops for Development of Skills in Recreation Activities Appropriate to Community Centers/Military Recreation Centers, such as, Adult Arts and Crafts, Adult Table Games/Hobbies/Music and Dance/Social Recreation/Tours and Travel/Reading/Etc. Field Practicum and/or Internship tailored to this specialization.*	COMMUNITY ACTIVITIES—Continued

Undergraduate Course	*Appropriate Specialization*
Recreation for Special Populations/Groups Urban Sociology/Recreation Recreation in Urban Settings/to Meet Urban Needs Recreation and Rehabilitation Recreation and Gerontology/the Aging Process Recreational Services for the Aging Gerontology and Recreation for Later Years Leisure Services for Special Populations/Older Adults/Leisure Needs of the Aging The Psychology of Aging Recreation Skills for Mature Adults Recreation for the Gerian/Aged/Senior Citizen Recreation Workshops for the Aging Recreation Workshops for Development of Skills in Recreation Activities Appropriate to the Older Adult, such as, Group Activities for Mature Adults/Hobbies/Reading/Adapted Sports/Arts and Crafts/Music and Dance/Etc. Field Practicum and/or Internship tailored to this specialization.*	SENIOR CITIZEN ACTIVITIES

Undergraduate Course	*Appropriate Specialization*
Recreation for Special Populations/Groups Literature for Children Recreational Sports Supervision for the Young Dynamics of Early Childhood Play Youth Leadership Management of Youth Agencies School Recreation/School and Community Recreation Music for the Young/Children's Music Youth Serving Agencies/Youth Organizations Playground Leadership Children's Theatre Elementary Games and Activities Child Psychology Youth Service Programs and Organizations Recreation Workshops for Development of Skills in Recreation Activities Appropriate to Youth Activities, such as, Teen Centers/Story Telling/Day Camps/Puppetry/Children's Theatre/Social Recreation for Youths/Music and Dance/Leisurecrafts/Etc. Field Practicum and/or Internship tailored to this specialization.*	YOUTH ACTIVITIES (youth recreation programs of urban community, recreation. and neighborhood centers; military dependent youth centers; and boarding schools)

*NOTE: Frequently, the undergraduate recreation field practicum and/or internship will be planned along the lines of one of the above specializations and can account for some of the 15 semester hours of course work required in the specialization. Applicants should describe in detail the nature of any fieldwork and internship if they wish such work to be credited to one or more specializations.

Undergraduate Course	*Appropriate Specialization*
Recreation Activities/Organization/Leadership/Programming/Nature and Scope/Resources/Economics/Administration/Introduction/History Leisure in Contemporary Society/American Society Fundamentals of Recreation Group Dynamics/Leadership Dynamics Interpersonal Relations in Recreation Practices Dynamics of Play Leisure and Man/Society/Human Development/Behavior Recreation Resources Inventory Social Recreation/Social Recreation Leadership History/Philosophy/Theory/Principles/Structure of/Issues in Recreation/Play Management of Volunteers Comparative Areas of Recreation Motivational Basis of Leisure Behavior Challenges of Leisure Public Safety in Recreation Areas First Aid and Safety	NONE (These courses apply to the field of *general recreation.* In meeting the requirement of 15 semester hours of course work appropriate to the specialization for which the person is applying, no more than 3 semester hours of general recreation course work may be included in the required 15 semester hours.)

Undergraduate Course	*Appropriate Specialization*
Recreational Arts	NONE—Continued
Interrelated Arts in Leisure Services	
Basic/General Psychology	
Recreation Arts and Crafts/Arts and Crafts	
Music for Educators/Recreational Music	
Public Relations for Recreators	
Recreation Operations and Facilities Management/Maintenance	
Political, Economic and Legal Aspects of Recreation	
Recreation Programming and Public Relations/Budget and Finance	
Human Resource Management	
Recreation in American Life	
Foundations of (in) Recreation	
Contemporary Issues in Leisure	
Methods and Materials in Recreation	
Special Problems in Recreation	
Modern Trends in Recreation	
Recreation Activities Skills and Techniques	
Workshops in various recreation skills	

B. *Experience*

In meeting basic requirements for a recreation program specialization in this series on the basis of experience, a minimum of 6 months of the required 3 years of experience must be appropriate to the recreation specialization for which a person has applied.

REQUIREMENTS FOR GS–7 POSITIONS AND ABOVE

A. *Amounts of experience required*

In addition to meeting the basic requirements, candidates for positions at grade GS–7 and above must have the following amounts of specialized recreation experience:

Grade:	Years of specialized experience
GS–7	1
GS–9	2
GS–11 and above	3

This experience *must* have given candidates demonstrated possession of the following:

—Knowledge of the methods, procedures, activities, and services of one or more speciality areas of recreation (e.g., youth or community recreation, recreation for the institutionalized or for older adults, and/or outdoor recreation).

—Skill in applying these knowledges to the work involved in planning, carrying out, and evaluating a specialty area recreation program which meets the needs of the community involved.

—Ability to meet and deal successfully with various types of people under circumstances which frequently involve influencing, motivating, leading, and controlling persons or groups.

B. *Quality (level) of experience*

For positions at all grade levels above the GS–5 trainee level, recreation experience shown must have been at a sufficiently high level of difficulty and responsibility to demonstrate the capacity to fully perform the duties and responsibilities of the position for which the candidate is applying. Therefore, at each grade from GS–7 through GS–11, 6 months of the required experience must have been at a level of difficulty comparable to the next lower grade in the Federal service, or at least 1 year of experience must have been at a level of difficulty and responsibility comparable to that of the second lower grade in the Federal service. For each grade above GS–11, 1 year of the required

recreation experience must have been at a level of difficulty comparable to that at the next lower grade in the Federal service.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Superior academic achievement cannot be substituted for experience requirements of positions in this series. It can, however, be used in quality ranking of applicants.

Graduate study may be substituted *only* for GS–5 entry level requirements in the absence of an undergraduate degree in an appropriate field of recreation or for a combination of appropriate education and experience. Such graduate study will be substituted on the basis of one full year of study for 9 months of experience. Graduate study which has not been used to meet GS–5 entry level requirements can be used in quality ranking applicants. Graduate study may not be substituted for requirements above the GS–5 level.

EXPERIENCE WHICH IS QUALIFYING

C. The following kinds of specialized experience are *examples of work which may* have provided the knowledges, skills, and abilities required for positions above the trainee level:

—Participating substantively in, or planning, organizing, coordinating, supervising, carrying out, or evaluating, entire or segments of community, industrial, outdoor, institutional, or other recreation programs.

—Planning, establishing, or evaluating a recreation curriculum for junior college or higher academic levels.

—Instructing in the principles and techniques of recreation program planning and management.

—Participating substantively in job-related leadership roles in the conduct of the programs and activities of local, regional, and/or national recreation organizations (e.g., regional outdoor recreation planning bodies and local, regional, and national constituencies of the National Recreation and Park Association). (NOTE: When this type of work experience has been credited as part of a full-time recreation position involving one of the other work experiences cited above, it should not be credited again as a separate experience. Also, when it has been a voluntary experience, occurring intermittently during non-work hours, such experience should be verified through the organization involved, and care should be taken to insure against overcrediting the time actually involved. For example, membership on the board of the Armed Forces Recreation Society of the National Recreation and Park Association involving four full-day meetings annually and approximately 3 hours weekly in voluntary services would equate to 1 month of full-time experience.)

NOTE: The source of funds in payment for services in any of these types of recreation work has no bearing upon the degree of qualification. For example, in military communities, an employee may have been paid from appropriated or nonappropriated funds for the same work. The nature and level of the recreation responsibility is the key factor, not the source of funds.

EXPERIENCE WHICH IS NOT QUALIFYING

The following work experience is not qualifying for recreation specialist positions:

—Rotational assignments (other than those as a GS–188 Series trainee or intern) to a recreation program with responsibility for administrative (i.e., non-technical) control of such program or a segment of the program. This type of assignment is common in the military agencies where it is the practice to have a military counterpart of a civilian program director. Whether or not such work experience in the military setting is substantive is easily determined by appraisal of the person's military specialty and career pattern. For example, a Navy pilot is given a shore assignment following aircraft carrier duty, with responsibility for administrative direction of the morale, welfare, and recreation activities of a base which has a GS–188 Recreation Program Director. His/her subsequent assignment is to a Naval Air Station as a squadron leader. This work experience as the military ad-

ministrator of a recreation program is not qualifying for positions in this series.

—Work in such paid or unpaid positions as summer camp aide, Little League coach/manager, playground assistant, recreation center assistant, scout leader or recreation supply room attendant. Such types of work experience usually require only a practical knowledge of recreation activities and are typical of positions in the Recreation Aid and Assistant Series, GS–189, whereas recreation specialist work requires the application of a knowledge of recreation goals, methods, and techniques in evaluating recreation needs and interests; in planning, developing, and coordinating recreation activities and programs; and in evaluating program effectiveness.

—Work as a business and/or operations manager of such recreation-related facilities as golf courses, swimming pools, and bowling alleys. The paramount business management knowledges are typical of positions in the General Business and Industry Series, GS–1101, as opposed to a specialized knowledge of the techniques and goals of recreation which is required in recreation specialist positions.

—Work as an instructor in specialized courses, activities, and projects which are often conducted within the framework of a broad program of recreation activities and services (e.g., as an auto mechanics instructor or an instructor of weaving in a recreation program hobby shop). Such work is typical of the Training Instruction Series, GS–1712.

—Work as an Art Specialist (GS–1056 Series), Music Specialist (GS–1051), Theater Specialist (GS–1054), or Sports Specialist (GS–030). Such experience may be acquired within the framework of a broad multiple purpose recreation program, but the paramount requirement of each position is for knowledge of, and skill in, the highly specialized subject-matter area rather than for general knowledge of the principles and techniques of recreation.

—Work as a park ranger, park manager, park naturalist, park technician, or guide. Such work is typical of the Park Management Series, GS–025; Park Technician Series, GS–026; and Guide Series, GS–090.

PERSONAL CHARACTERISTICS REQUIRED

The work of the recreation specialist requires sensitivity to the recreation interests, needs, and motivations of participants.

Recreation specialist positions require the ability to work harmoniously and effectively with others, a requirement which involves the establishment and maintenance of mutually satisfying working relationships with individuals and groups both inside and outside the organization and the participating community. Another requirement is the ability to inspire confidence and enthusiasm, that is, the ability to motivate participants, volunteers, paid staff, and support personnel toward maximum involvement in the recreation program.

Individual recreation specialist positions may emphasize the requirement for specific personal characteristics relating to the specialized nature of the program involved or the participant community served. For example, the ability to relate to children and young people is especially important in youth activities recreation programs.

In filling positions through either competitive or inservice placement, appointing officers should assure themselves by reference checks, personal interview, or other appropriate means that candidates possess any of these qualities required to the degree necessary for satisfactory performance of the duties of the position.

BASIS OF RATING

No written test is required. Candidates will be rated on a scale of 100. The basis of rating will be an evaluation of the quantity and quality of their education, training, experience, and

personal qualifications in relation to the duties and requirements of the specific position for which they are being considered. Work experience and relevant course work and other training above the minimum required for a particular grade level will be considered in ranking qualified candidates based on the *relatedness* of work experience, course work, or training to a position's required knowledges, skills, and abilities. For example, it is in this quality ranking process that superior academic achievement and graduate education which has not been used to meet GS–5 entry level requirements can be given appropriate consideration.

Ratings will be based on statements in the application form, any supplemental information forms, college transcripts, training records, and any additional evidence that may be received.

GUIDE FOR THE EVALUATON OF EDUCATION, TRAINING, AND EXPERIENCE

A. *Ranking candidates*

In evaluating the relative qualifications of candidates, the following factors should be considered:

1. *The nature, extent, and quality of education and training.*

   The evaluation of the nature, extent, and quality of education and training is of primary importance in evaluating the qualifications of candidates for positions at the entry level (GS–5). At higher levels, it is also important, but subordinate to proven capability demonstrated through experience.

   Distinctions in the quality of education and training should be made on the basis of: (a) the substance and recency of the course work in recreation, (b) the breadth and depth of the general background provided by a candidate's total course work, and (c) the substance and relevance of any other training in recreation. Although grades achieved may be considered, it is more important to give particular attention to the extent to which the substance of course work or of training sessions completed by the candidate has equipped him/her with the knowledges, skills, and abilities (KSA's) essential to success in the position to be filled. For example, (a) the techniques of teaching young people at secondary school level or below, are valuable for recreation specialist positions in youth activities, and (b) course work or training in the methods and procedures for developing and utilizing natural resources for recreation purposes is appropriate to the needs of recreation specialist positions in outdoor activities programs, or to summer camp and other outdoor recreation segments of youth programs.

2. *The nature, extent, and quality of experience and accomplishments.*

   The evaluation of the kind and level of experience should be based on careful consideration of the knowledges, skills, and abilities (KSA's) offered by a candidate in relation to the specific KSA requirements of the position to be filled. Quite simply, what are the KSA's needed for success in the job involved, and to what extent do the KSA's of the candidate meet those required in such job (i.e., would they enable him/her to accomplish the desired results of such position)?

   Some positions are concerned with the overall direction and management of a recreation program comprising a variety of subordinate programs carried out by recreation specialists, subject-matter specialists, or both. Such positions require substantial program planning and management skills and abilities. Therefore, for positions involving managerial duties, directly related managerial experience should receive the highest quality rating.

B. *Methods of evaluation for inservice placement*

FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement,

describes methods of value in appraising candidates' qualifications and promotion potential.

SELECTIVE PLACEMENT

For positions with specialized requirements, consideration and selection may be limited to those candidates whose records show evidence of the required capabilities. The kinds and combinations of specialized knowledges and skills required vary considerably. Generally, however, the successful performance of the work requires an appropriate combination of the following at grade GS-7 and above:

—Skill in the application and utilization of the principles, methods, and techniques of recreation in the planning and performance of assigned projects or programs of a recreation program specialty area as defined under DESCRIPTION OF WORK, pp. 1 and 2.

—Skill in identifying recreation interests and needs of particular individuals or groups such as children, young people, adults, the aged, or persons in institutional settings such as prisons, or in providing a wide range of participant types and age groups with diverse recreational activities and services through community or outdoor recreation programs.

—Skill in leading or guiding the recreation activities of particular individuals or groups such as children, young people, adults, or the aged.

—Skill in stimulating interest and participation in recreation activities and in communicating and working effectively with particular types of individuals or age groups or with a variety of types and age groups, in voluntary and permissive settings.

—Skill in overcoming distinterest, fear, mistrust, and hostility and in gaining the acceptance, confidence, and enthusiastic response of potential and actual program participants.

—Skill in assessing individual and group response to activities or programs.

—Skill in evaluating the extent to which recreation programs are meeting goals and objectives.

—Skill in the effective management of the financial and physical resources of recreation programs.

QUALIFICATION INQUIRIES

Inquiries, including contacts with applicants' present and former supervisors and associates, may be made to obtain further information concerning applicants' technical and personal qualifications and general suitability for these positions.

INTERVIEW REQUIREMENTS

Skill in interpersonal relationships is vital to success in most recreation specialist positions. Accordingly, candidates may be required to appear for an employment interview. The purpose of this interview is to permit the evaluation, at firsthand, of the personal qualities that are important to success in these positions.

SUPERVISORY POSITIONS

For supervisory positions, use the qualification standards for "Supervisory Positions in General Schedule Occupations" in part III of Handbook X-118 in conjunction with this standard.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to safely and efficiently perform the essential functions of the position. Usable vision, hearing, and speech are required. However, in most cases, a specific physical condition or impairment other than complete loss of vision, hearing, or speech will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform. Reasonable accommodation may include, but is not limited to: job modification, provision of assistive devices, and/or job restructuring.

RECREATION AID AND ASSISTANT SERIES[1]

Recreation Aid, GS–1/3
Recreation Assistant, GS–4/6

DESCRIPTION OF WORK

Recreation Aids and Assistants utilize a practical knowledge of one or more recreational activities, combined with skills in the maintenance and use of recreational materials and equipment, in providing support and assistance to various types of recreation activities and services by performing limited aspects of recreation work, and in working with participants in well-organized and carefully monitored recreation activities.

Recreation aids typically are assigned such tasks as (1) setting up recreation areas for scheduled activities, (2) passing out and collecting materials and equipment, (3) keeping records of equipment, of program participation, or of recreation equipment charge-outs, (4) providing basic information regarding scheduled activities and services, and (5) maintaining recreation areas, tools, and equipment. Recreation assistants participate in program activities by (1) explaining rules and procedures, (2) providing information or assistance to program participants, (3) encouraging program participation, or (4) providing other program support.

Recreation programs utilizing recreation aids and assistants include military and urban community centers, child care and youth activities centers, senior citizens recreation activities, outdoor recreation activities, recreational crafts and hobby shops, sports centers, music and theater centers, and general recreation activities for such other special populations as students in Bureau of Indian Affairs boarding schools.

KNOWLEDGES, SKILLS, AND ABILITIES IN RELATION TO EXPERIENCE

General experience

This is experience which has provided a general familiarity with the routines and procedures followed in one or more of the various types of work situations. Such situations have involved simple clerical, supply, or other work which has enabled the applicant to demonstrate alertness, reliability, and the ability to deal with others. At grade levels GS–1 through GS–3 in this series, any experience which may be required is only general experience.

Appropriate recreation experience

At grade levels GS–4 and above in this series, applicants must demonstrate that experience and training equipped them with the knowledges, skills, and abilities (KSA's) which are appropriate to work in this series. The following chart illustrates experience situations providing these required KSA's:

KSA's Required	*Examples of Appropriate Experience*
—Practical knowledge of one or more recreation activities.	1. Group leader, counselor, or similar work in public or private recreation programs for adults or children, such as summer camps, local playgrounds, YMCA and YWCA clubs, Boy Scouts and Girl Scouts, urban community centers, or resort recreational activities. 2. Teacher's aid in an elementary school recreation or physical education program, with emphasis on development of general recreational skills and abilities. 3. Aid or assistant assignments in recreation while on active military service.

[1] This standard supersedes the standard for the GS–189, Recreation Aid and Assistant Series, which was issued in April 1973.

KSA's Required	*Examples of Appropriate Experience*
	4. Aid or assistant in the organization and administration of recreation activities, such as preparing activities calendars, maintaining attendance records, and providing information concerning schedules and activities. 5. Summer aid in a State or national park, with duties relating to the recreational activities of visitors to campsites, trails, picnic areas, nature and craft centers, and boating and fishing areas (e.g., demonstrating camping techniques and park safety, conducting nature tours, and overseeing farm animal areas provided for childen).
—Skill in the maintenance and use of recreation materials and equipment.	Examples 1 through 3, above, and 6. Sales or stock clerk in a recreation supplies and equipment shop. 7. Aid or assistant in the issuance of authorized property, and in the maintenance of inventory control and accountability for such property in a recreation facility. 8. Aid or assistant in a hotel or resort recreation service, with duties such as setting up areas for games, tournaments, and other organized group recreational activities.
—Ability to work effectively with others.	Examples 1 through 8, above. (See *Evidence of ability to work effectively with others*, following.)
—Ability to perform routine program organization and administration tasks (e.g., setting up calendars of activities, maintaining attendance records, maintaining stock inventory records, preparing recreation equipment sales or loan records).	Examples 1 through 8, above, particularly 3, 4, 6, and 7.

EXPERIENCE REQUIREMENTS

For GS–1 level, no general experience or appropriate recreation experience is required. Applicants are not expected to demonstrate possession of any knowledges, skills, and abilities appropriate to the work in this series.

For GS–2 level, 6 months general experience is qualifying. *For GS–3 level*, 1 year of general experience is qualifying. Applicants for positions in these 2 grade levels are not expected to demonstrate possession of any knowledges, skills, and abilities appropriate to the work in this series.

For GS–4 level, in addition to the general experience requirements for GS–3 level, applicants must demonstrate possession of 1 year of appropriate recreation experience, such as is described in this standard. *For each grade above GS–4 level*, in addition to the general experience requirement for GS–3 level, 1 year of appropriate recreation experience of the level of difficulty and responsibility comparable to that of the next lower grade level in the Federal service is required.

Quality of experience

For any position the required amount of

experience will not in itself be acceptable as final proof of qualification for a given grade level. The applicant's record must show that this experience has provided the ability to perform the work at the level of the position to be filled.

Evidence of ability to work effectively with others

The quality of experience involving contacts with others is not always readily apparent. While the extent to which an applicant meets a requirement such as having a clear speaking voice, may be determined during personal interviews, other requirements such as tact, courtesy, and a capacity for working effectively with others, are not so easily determined. In filling positions which stress the importance of the ability to work effectively with others, officials should assure themselves by reference checks, personal interviews, or other appropriate means that applicants possess these qualities to the degree required for satisfactory performance of the work.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. The successful completion of a full senior high school curriculum or possession of a General Educational Development High School Equivalency Certificate (GED) may be substituted for the entire 6 months of general experience required at the GS–2 level or for 6 months of the total required general experience at GS–3 level and above.

2. Study completed in an institution above the high school level is evaluated as evidence of ability in terms of its relatedness to the knowledges, skills, and abilities (KSA's) described in this standard. Specifically:

a. Successfully completed study in an accredited college or university may be substituted for general experience on the basis of 1 academic year of study (30 semester hours) for 1 year (12 months) of general experience.

b. Successfully completed study (additional to the above) may be substituted for the appropriate recreation experience required for GS–4 on the basis of 1 academic year year of study (30 semester hours) for 1 year (12 months) of experience, provided that academic study has averaged at least 6 semester hours per year in individual courses in or related to recreation subjects (e.g., any of the undergraduate courses listed in the GS–188 qualification standard, which includes, for example, basic psychology and group dynamics as well as specific recreation subjects; arts and crafts courses; or courses specific to a major in physical education).

c. Successfully completed 4-year program in an accredited college or university with major study in one or more of the appropriate fields of recreation (see GS–188 qualification standard for examples of major study) may be substituted in full for GS–5 experience requirements. (Note: Most initial entry situations are expected to occur at or below the GS–4 level. However, this substitution might have practical application in the event that a GS–5 entry recruitment situation occurs.)

d. Special training for recreation support work, acquired through manpower development programs or through staff training programs, will be allowed appropriate credit based on the extent and applicability of the training to the level of the position to be filled. Where applicable, credit will be given on the basis of 1 month of special training for 1 month of experience.

BASIS OF RATING

Competitors for all positions will be rated on a scale of 100. No written test is required.

For positions at the GS–1 level the basis of rating will be an evaluation of the applicant's willingness to do simple and repetitive recreation aid work, dependability, and ability to work safely.

Applicants for GS-2 and above will be rated on the quality and extent of their experience, education and/or training, and personal characteristics as they relate to the duties of the position. Such ratings will be based on the applicant's statements in the application and upon additional information acquired through qualifications inquiries.

QUALITY RANKING FACTORS

In evaluating the training and experience of applicants for positions at GS-3 level and above, successfully completed academic study, training, and/or work experience which are specifically applicable to the recreation specialty area involved or to recreation programs in general may be the basis for ranking such applicants above those possessing no experience or only general experience, or those possessing less specifically applicable recreation education, training, and/or experience. (For example, (1) experience in a State or national park would be most useful in an outdoor activities specialty area; (2) experience in youth clubs or an elementary school is applicable to the needs of a youth activities program; (3) experience in an adult recreation program of a hotel or resort is applicable to community activities relating to adult recreation; and (4) physical education courses dealing with organized team sports are applicable to military, urban, or institutional adult sports programs and to athletic segments of youth activities programs.) The more general types of recreation training and/or experience (i.e., those less directly applicable to one or more of the several recreation program specialty areas) may serve as quality ranking factors in rating applicants against those applicants with only general training and/or experience.

QUALIFICATIONS INQUIRIES

Inquiries, including contacts with the applicant's present and former supervisors and associates, may be made to corroborate the applicant's statements or to obtain further information concerning the applicant's personal qualifications, character, and suitability for these positions. These inquiries will be conducted by means of personal contacts or by qualifications questionnaires.

SELECTIVE PLACEMENT

For some positions, recreation aids or assistants may be required to have some familiarity with the particular recreational activities involved or with the activities and procedures employed with special populations, such as the aged or the very young. For such positions consideration may be limited to those who have had experience in the appropriate work at a qualifying level of difficulty.

SUPERVISORY POSITIONS

For supervisory positions in this series, apply the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III, Handbook X-118, in conjunction with this standard.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to safely and efficiently perform the essential functions of the position. Usable vision, hearing, and speech are required. However, in most cases, a specific physical condition or impairment other than complete loss of vision, hearing, or speech will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may include, but is not limited to: job modification, provision of assistive devices, and/or job restructuring.

GENERAL ANTHROPOLOGY SERIES

Anthropologist GS-5/15

STATEMENT OF DUTIES

Anthropologists advise on, administer, supervise or perform professional work in connection with the scientific study and interpretation of man's adaptation to his environment. Such work requires a knowledge of the theories and principles underlying one or more branches of the field, i.e., archeology, ethnology, physical anthropology or linguistics, and the ability to apply these principles to the solution of anthropological problems.

Anthropologists plan and carry out basic research including field work. They study and analyze data and materials and prepare articles and monographs for publication. They devise themes, ideas and data for exhibit programs and assume responsibility for museum collections. They serve as consultants to colleagues, representatives of the academic community and the general public and participate in symposia and other activities within the scientific and academic community.

BASIC REQUIREMENTS FOR ALL GRADES

Either A, B, or C is required:

A. A full 4-year course in an accredited college or university leading to a bachelor's degree. This study must have included or been supplemented by 24-semester hours in an appropriate field of anthropology; *or*

B. Four years of successful progressively responsible experience in the field of anthropology performing research, museum work, or similar professional-level work. This experience must indicate that the applicant possesses a professional knowledge of anthropology comparable to that which would have been acquired through the successful completion of a 4-year college course as described in A above; *or*

C. Any time-equivalent combination of A and B above, provided that for each year of education offered an average of 6-semester hours in the fields on anthropology, or closely related course work must be shown.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, anthropology, or one or more of the recognized branches of the field (archeology, ethnology, physical or cultural anthropology, or linguistics).

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One full academic year of graduate education.

GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

WRITTEN TEST

A written test is required for positions at grades GS–5 and GS–7. It should be waived for in-service placement actions, but not for appointments outside the register.

A written test is not required for positions in grades GS–9 and above.

BASIS OF RATING

Applicants for grades GS–5 and GS–7 will be rated on a scale of 100 based on the written test score and an evaluation of the applicant's experience, education and training.

Applicants for grades GS–9 and above will be rated on a scale of 100 based on an evaluation of the applicant's experience, education and training.

Archeologist, GS-5/15
Supervisory Archeologist, GS-9/15

DESCRIPTION OF WORK

Archeologists perform professional work concerned with the scientific study of past human activities through the physical remains of life and past human activities. The work may include research, field investigations, laboratory analysis, library research, interpretation or consultative work, preparation of reports for publication, curation and exhibition of collections, or development and implementation of programs and projects which carry out such work. Such work requires a knowledge of professional archeological principles, theories, concepts, methods, and techniques.

BASIC REQUIREMENT FOR ALL PROFESSIONAL ARCHEOLOGIST POSITIONS AT ALL GRADES

Candidates must have successfully completed a full four-year or longer course of professional study in an accredited college or university leading to a bachelor's degree. The course of study must have included:

—3 semester hours each in the following:
  —Courses concerned with history of archeology, i.e., an introduction to the discipline of archeology and culture history worldwide; development of archeological methods and techniques; and the theoretical underpinnings of archeology and its relation to anthropology and such other disciplines as history, geography, geology, and the environmental sciences.
  —Courses concerned with archeology of a major geographical area such as North America, Africa, etc., i.e., survey of the archeology of the geographcal area from the period of earliest occupation to the recent past, examining major broad patterns of cultural development, describing regional variations and recent discoveries.
  —Courses concerned with regional archeology, i.e., survey of archeological cultures and sites in a specific part or portion (e.g., Northwest Coast, Plains, Southeast) of a major geographical area (e.g., North America) to acquire or develop a foundation for regional specialization for professional development.
  —Courses concerned with theory and methods of archeology, i.e., an examination of archeological methods and theoretical approaches for reconstructing and interpreting past human behavior. Methods include but are not limited to typology, classification, sampling, cultural evolution, diffusion, dating, and analytical techniques.
  —Courses concerned with archeological field school, i.e., a basic understanding of theoretical and practical approaches to research design implementation; survey; excavation; documentation; mapping; data collection, processing, and analysis; field preservation techniques; and report preparation by participation in actural field work.

AND

—6 semester hours of related course work in:
  —geography, geology, or cultural geography;
  —history, historiography, or historical archeology;
  —environmental studies;
  —scientific writing (nonfiction English composition); and/or
  —surveying; and
—archeological field school.

ALTERNATE REQUIREMENT

Candidates may substitute for the basic requirement an alternate requirement of college-level education, training, and/or technical experience that furnished (1) a thorough knowledge of the sciences underlying professional archeology and (2) a good understand-

*This standard supersedes the qualification standard issued in December 1968.

ing, both theoretical and practical, of the archeological principles, methods, and techniques and their applications to the study of historic and prehistoric cultures. This knowledge and understanding must be equivalent to that provided by a four-year or longer professional curriculum, with respect to (a) the knowledge and skills required to perform professional archeological work in the position to be filled and (b) the ability to develop and progress as a professional archeologist. The adequacy of such background must be demonstrated by one of the following.

1. *Related Curriculum*—Successful completion of a course of study in an accredited college or university leading to a bachelor's degree in anthropology (with emphasis on ethnology, physical anthropology, or scientific linguistics), history, American studies, or related discipline may be accepted as satisfying in full the alternate requirement, provided the curriculum supplies the academic course work sufficiently similar to the basic requirement (including archeological field school) to warrant comparable treatment.
2. *Experience*—Four years of archeological work experience of such character and diversity as to be a satisfactory substitute for the basic requirement. This experience must have demonstrated that the candidate has acquired a thorough knowledge of the fundamental principles and theories of professional archeology and possesses an understanding of the field of archeology comparable to that normally acquired through successful completion of the full course of study in an accredited college or university. The work experience must have included archeology field experience, which may include that gained in an archeological field school. Field experience should include a combination of professional experience in archeological survey, excavation, laboratory analysis and preparation of written materials. The nature and quality of such field experience should be such that, after additional experience under the direction of a higher grade archeologist, the candidate would be able to demonstrate the ability to be a crew chief, directing the work of others at a single location as a part of a larger archeological project.
3. Any time-equivalent combination of experience and education as defined above under the Basic Requirement or under the Related Curriculum.

The basic and alternate requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL REQUIREMENTS FOR POSITIONS AT GS–7 AND ABOVE

Candidates for grades GS–7 and above must have had professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic or alternate requirements. Such professional experience or graduate education must have equipped the candidate with the knowledge and skill to perform fully the work of the position for which the candidate is being considered. Note: See the criteria in Part II, Section III of this handbook for evaluating full-time and part-time graduate study.

1. *Experience*

In addition to the basic or alternate requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience directly related to the position being filled* *Years*
GS–7	1
GS–9	2
GS–11 and above	3

For grade GS–11 and below, at least six months of the required experience must

have been at the level of difficulty comparable to the next lower grade, or one year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least one year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education* [1]

In addition to the basic or alternate requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade	*Minimum amount of graduate education in appropriate subject matter fields*
GS-7	One year of full-time graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree.
	OR
	Two years of full-time graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph.D or equivalent).
	OR
	Three years of full-time graduate education.

3. *Combination of professional experience and graduate education*

Equivalent combinations of professional archeological experience and graduate education of the type described above are acceptable at each grade.

PROFESSIONAL EXPERIENCE REQUIREMENTS

Experience may have been gained in the performance of professional archeological survey, excavation, laboratory analysis, and report preparation to obtain demonstrated knowledge of the appropriate fundamental principles and theories and the skills and technical competence in the use of scientific methods and techniques of archeology.

For GS-7—Candidates should demonstrate the knowledge and skills to be a crew chief, participate in the development and planning of a single archeological field project, and direct the implementation of such a project.

For GS-9—The work experience must have demonstrated a working knowledge of methods and techniques applicable to archeology. Archeological work required in educational courses such as archeological field schools and laboratories are not to be used in lieu of actual work experience. It must also have demonstrated skill in the investigation, treatment, and analysis of basic data in preparing interpretative and analytical reports. For example, candidates should demonstrate the knowledge and skills to participate with other more experienced archeologists in the development and planning of a single archeological field project and have directed the implementation of such a project, including preparation of technical reports.

For GS-11—The work experience must have demonstrated that the candidate possesses the ability to perform archeology work of some difficulty and responsibility. The experience must demonstrate the knowledge and skills to develop, plan, and supervise implementation of original, independent fieldwork at multiple archeological field projects or increasingly more complex single projects, including preparation or supervision of preparation of technical reports. The experience must also demonstrate a full understanding of budgeting, administering, and managing projects, and conferring with higher management on the implementation of projects.

For GS-12—The work experience must have demonstrated skill, knowledge, and technical competence in the use of (a) scientific and mathematical theories and principles applicable to archeology, (b) professional or scientific inquiry and analysis in the solution of difficult and complex problems, and (c) substantive topical and regional data, e.g., the knowledge and skills to develop and manage archeological programs, ranging from single geographic areas within regions

[1] The superior academic achievement provision may not be used to fill positions in this series.

to major geographic areas encompassing a number of regions. Ability to prepare thorough and comprehensive reports relating to difficult problems must also be demonstrated.

For GS-13—The work experience must have demonstrated that the candidate possesses a thorough understanding of scientific principles and theories underlying archeology and a wide knowledge of concepts, factors, and conditions necessary to develop and implement archeological programs. The experience must have demonstrated the candidate's ability in the organization, direction, and coordination of complicated and important projects, programs, or studies, or marked technical competence and creativity in original scientific inquiry in developing new methods or new insight into relationships involved in complex archeological areas.

For GS-14 and GS-15—The work experience must (a) demonstrate a thorough knowledge and understanding of the scientific principles and theories applicable to archeology and (b) result in new information or advances concerning various alternative courses of action to resolve exceedingly complex archeological problems. Experience must demonstrate: (1) skill and facility in the organization, direction, and coordination of complex and difficult projects; (2) exceptional competence in creative activities of high calibre resulting in important contributions to the fundamental knowledge of archeology; and (3) ability to conduct high-level consultative and/or advisory work in formulating, presenting, and carrying out far-reaching changes in archeological programs, plans, and policies.

SELECTIVE FACTORS

Archeologists apply an understanding of the principles of archeology and related sciences and technologies. Some archeologist positions however require a particular knowledge or combination of knowledge and skills as essential requirements for satisfactory performance. For example, archeologists may work their way into a given culture or geographical area (e.g., North America, Latin America, the West Indies, Europe, or India) which remains a continuing interest even though they later pursue certain topical or theoretical interest over wide areas, or develop a second area for comparative purposes. This pattern provides regional specialists for programs or projects which require recruitment of archeologists based on specialized knowledge of the cultural history peculiar to a given area.

It may be appropriate to use these requirements as selective factors, i.e., only those candidates who have the appropriate knowledge and skills are referred for employment consideration. Where selective factors are used, they must be demonstrably related to the knowledge, skills, and other characteristics considered essential for satisfactory performance of the duties of the position.

The appropriateness of the selective factors (1) should be reflected in the duties and responsibilities of the position as presented in the position description or in other official information provided by the agency and (2) must not establish an unreasonably high or overly restrictive requirement. Selective factors should not be used if it is evident that other eligibles could perform satisfactorily after a customary training period.

QUALITY RANKING FACTORS

Agencies may develop quality ranking factors to assist in determining which applicants are best qualified.

These do not affect the basic qualification requirement, but must be directly related to the duties and responsibilities of the position

to be filled. Quality ranking factors must also distinguish various levels of performance, particularly superior performance, since they are used to determine which of the eligible candidates are to be included in the group from which supervisors and managers will make final selections.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for Supervisory Positions in General Schedule Occupations, in Part III of this handbook should be used in conjunction with this standard.

INSERVICE PLACEMENT ACTIONS

For inservice placement actions, candidates must clearly show the ability to perform archeological work at the level sought. Mere tenure in a professional archeologist position for a period of a year does not automatically qualify the employee for professional work on the next higher level.

The provisions of 5 C.F.R. 300, Subpart F, must be complied with concerning the rate at which employees may be promoted, irrespective of their qualifications.

BASIS OF RATING

Candidates will be rated on a scale of 100 on the basis of an evaluation of their personal and professional qualifications as indicated by the data furnished in their application forms, and by information which may be gained through inquiries to their supervisors, associates, and other professional references.

AMENDED EDUCATIONAL REQUIREMENTS

This standard is subject to the provisions of the Amendment of Educational Requirement for Most Professional Positions in Science and Technology as stated in Section III, part II of this handbook.

PHYSICAL REQUIREMENTS

The following requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Applicants and employees must have the capacity to perform the essential functions of the position without risk to themselves or others. In most cases, a specific medical condition or impairment will not automatically disqualify an applicant or employee. A physical condition or impairment may be disqualifying if the condition, for good medical reason, precludes assignment to or warrants restriction from the duties of the specific position. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation shall also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to, the use of assistive devices, job modifications or restructuring, provision of readers and interpreters, or adjusted work schedules.

In positions where there is exposure to environmental agents for which there are occupational environmental standards which require protective measures or medical surveillance, applicants and employees shall undergo initial and periodic evaluation in accordance with the surveillance requirements.

Also, all positions involving operation of a Federal motor vehicle carry the additional material requirements specified in the Federal Personnel Manual (FPM) Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For those positions in which operating a motor vehicle is essential to the efficient performance of the work, candidates are required to:

—possess, or obtain within 30 days of employment, a valid State driver's license, and

—qualify, after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency. (See FPM Chapter 930.)

GUIDE FOR EVALUATING CANDIDATES

Evaluating Education

In evaluating the nature and quality of education and training offered by candidates, consideration should be given to the following.

1. The nature and quality of undergraduate education is used to evaluate candidates at the GS–5 level. Undergraduate training has less significance at higher grade levels when compared with graduate education and professional experience.
2. In general, courses dealing with the fundamental principles and theoretical concepts of archeology are of higher value, and provide a better base for future professional development, than courses primarily oriented toward the application of particular methods and techniques for the solution of specific problems.
3. Certain archeologist positions require preparation in other professional disciplines or lines of work. In evaluating candidates, consideration should be given to course work related to the specialized demands of the position being filled and to the target position in the career ladder. Illustrative of acceptable courses are:
   - —Courses concerned with architectural history, i.e., ideas, philosophies, and processes that establish a basis or procedure for creating architectural form and space; dominant works and trends in Western World architecture; building types to house cultural institutions and major monuments; influence of social attitudes and cultural values on architecture; influence and interactions of related fields such as engineering, sociology, psychology, arts, and humanities.
   - —Courses concerned with history, i.e., any number of comprehensive courses which focus on aspects of social, economic, political, intellectual, cultural systems, and change.
   - —Courses concerned with historiography, i.e., study of the diverse approaches to analysis or interpretation of historical data, including traditional chronological, regional, comparative, quantitative, and systems approaches.
   - —Courses concerned with historical archeology, i.e., the application of anthropological methods and theories to archeological sites and data for which documentary information exists.
   - —Courses concerned with geography, i.e., an introduction to the principles of geography, historical geography, human geography, climatology, and quantitative geographic techniques.
   - —Courses concerned with statistics, i.e., principles of statistical analysis, basic techniques for quantitative description and reference.
   - —Courses concerned with computers, i.e., introduction to how computers work, principles and operation, practical application and beginning use.
   - —Courses concerned with geology, i.e., introduction to historical and physical geology—history and principles, geomorphology, basic identification, and analysis.
   - —Courses concerned with surveying, i.e., survey methods and tools, use of transit, alidade, and plane table-basic mapping techniques and methods.

—Courses concerned with osteology, i.e., study of the human skeleton, laboratory identification, preservation, measurement, and interpretation. (Note: May be medical or physical anthropology oriented.)

—Courses concerned with botany and/or zoology, i.e., basic plant and animal taxonomy and identification, and vertebrate osteology.

4. Appropriate quality ranking credit may be given to related course work over and above the minimum requirements.

Evaluating Experience

In evaluating the nature and quality of experience offered by candidates, consideration should be given to the following.

1. Professional archeology experience required for positions at grade GS-9 and above is characterized by all three of the following:
   a. *Professional knowledge of archeology* which is defined as the comprehensive, indepth knowledge of archeology, typically acquired in a four year professional curriculum.
   b. *Skill to apply archeology* which is defined as the ability to: (a) apply fundamental and diversified archeology concepts, theories, and practices to achieve objectives; (b) adapt and apply methods and techniques of other disciplines; and (c) organize, analyze, interpret, and evaluate scientific, technical, or other data in the solution of archeological problems.
   c. *Positive and continuing development of professional knowledge and skill* which is defined as involving activities such as:
      —developing new approaches, methods, or techniques for the solution of archeological problems;
      —formal training and guidance by experienced professionals;
      —undergraduate, graduate, or postgraduate academic study;
      —active participation in seminars, conferences, and committees of professional societies and other organizations;
      —publication of professional papers or similar significant contributions to the profession and its literature; or
      —honorary or other form of recognition including such recognition as being cited in publications or other ways for work accomplishments or expertise; or being invited to speak or present papers to professional groups.
2. When experience is substituted for education, it should provide the *equivalent* background.
3. In addition to experience which meets minimum requirements (including selective factors) other experience which provides job-related knowledge and skill (e.g., in functional categories or relevant subject matter) should receive appropriate quality ranking credit.

SOCIAL SCIENCE STUDENT TRAINEE SERIES

GS–199

Student Trainee (Appropriate Specialty) GS–2,3,4,5

The qualification standard appearing under the General Student Trainee Series, GS–099–0, is to be used for these positions.

PERSONNEL MANAGEMENT AND INDUSTRIAL RELATIONS GROUP, GS-200

Personnel Officer GS-201-11/15
Personnel Management Specialist GS-201-5/15
Personnel Staffing Specialist GS-212-5/15
Position Classification Specialist GS-221-5/15
Salary and Wage Administration Specialist GS-223-5/15
Employee Relations Specialist GS-230-5/15
Labor Relations Specialist GS-233-5/15
Employee Development Specialist GS-235-5/15

Contents

	Page
Part I: Description of work for positions covered	1
Part II: Experience, Education, and Other Requirements:	
Education or experience requirements	2
Basic requirements for all positions	2
Additional specialized experience requirements for all positions	3
Substituting education for specialized experience	4
→Alternate requirements at GS-7←	4
Level of experience	5
Personal attributes and characteristics	5
Test requirements and basis of rating	5
Interview requirements	5
Selective certification	5
Physical requirements	5
Part III: Special provisions for entry and advancement:	
Inservice entry to personnel occupations	5
Reassignment across personnel specialization lines	6
Reassignment of employees from other fields	6
Other reassignments	6
Appointments, reassignments, and promotions to positions at grade GS-12 or above:	
Basic concepts	6
Requirements	7
Evaluating candidates for personnel officer and assistant personnel officer positions at grade GS-13 and above	7
Area of consideration	8
Use of evaluation panels	8
Qualifications investigations	8
Part IV: Guide for evaluation of candidates:	
Techniques for appraisal of candidates	8
Qualifications investigations	8
Evaluating education and experience for positions at grades GS-5 and GS-7	9
Education	9
Experience	9

(TS-167)
August 1978

Page

Evaluating specialized experience for personnel officer and specialist positions 10
Personnel officer positions 10
Personnel specialist positions 10
Part V: Guide for analyzing job requirements and for evaluating candidates in relation to job requirements:
Content and use of the guide:
Nature of materials provided 11
Application of the system 11
Suggested procedure 11
Determining job requirements 11
Evaluating candidates 12
Screening, ranking, and grouping candidates 12
Making selections 12
Qualifications analysis and appraisal form for personnel positions 13
→Qualifications analysis and appraisal form for personnel staffing positions← 14

PERSONNEL MANAGEMENT AND INDUSTRIAL RELATIONS GROUP

PART I: DESCRIPTION OF WORK FOR POSITIONS COVERED

PERSONNEL OFFICER GS-201

Typical personnel officer functions include: (1) formulating and recommending personnel management policies, (2) planning and establishing programs to carry out personnel management functions, (3) assigning responsibilities and exercising supervision over personnel activities, (4) building and maintaining cooperative relationships with employee organizations, (5) evaluating program effectiveness and results, (6) serving as advisor to top management regarding personnel implications of policy and program decisions, (7) developing and reviewing personnel programs to promote employee morale and motivation. In addition, the personnel officer and the personnel staff are expected to relate personnel management functions to the achievement of effective, economical management, to foster in managers and employees an attitude of responsive service to the public, and to develop effective communications between management, employees and employee organizations.

PERSONNEL MANAGEMENT SPECIALIST GS-201

Personnel management specialists perform or direct work in two or more of the specialized personnel management functions described below, or other specialized personnel work such as research which is not included in the established functional specializations.

PERSONNEL STAFFING SPECIALIST GS-212

→*Staffing* involves the application of job analysis for occupations, single positions or groups of positions; the development or application of qualification standards or other rating guides (e.g., rating schedules, examining guides, etc.); the selection of appropriate staffing methods to identify candidates; the ranking of candidates by analysis of experience, training, and selective and quality factors; the interviewing of potential employees; and the design and operation of merit promotion plans.

Examining involves the application of qualification and the use of classification standards and other occupational data, and development of rating schedules; knowledge of the various occupational groups, job analysis and selection process and the use of a variety of examining methods; knowledge and skill in the application of techniques developed through personnel research; knowledge of work force availability and staffing needs of the agency or organization serviced; and knowledge of the role examining, rating and selection play in fulfilling the needs of the agency or activity for which responsible.

Recruitment involves a high degree of interpersonal relationships in dealing with representatives of educational institutions, professional or trade associations, news media, public employment activities, special emphasis groups, and applicants in order to develop recruitment sources of potentially qualified applicants; skill in developing a variety of media strategies to suit specific recruitment needs as they arise; skill in developing and writing effective and creative recruitment advertisements; and knowledge and skill in interviewing techniques.←

POSITION CLASSIFICATION SPECIALIST GS-221

Position classification specialists classify positions according to factors established under the Federal position classification plan, establish and maintain position classification plans, formulate classification policies and procedures, develop occupational structures, and interpret classification standards or other guidelines. In addition, as a normal requirement, position classification specialists are expected to guide management efforts to manage and control positions in line with sound, economical administration. This responsibility reflects the unique opportunities the position classification specialist has to observe and influence management practices

relating to organization of work, →work force← utilization, establishment of position, and similar matters.

SALARY AND WAGE ADMINISTRATION SPECIALIST GS-223

Salary and wage administration specialists select occupational samples, collect information regarding current pay rates and fringe benefits, analyze pay data, and construct or verify pay schedules or rates.

EMPLOYEE RELATIONS SPECIALIST GS-230

Employee Relations Specialists are concerned with establishing and maintaining employer-employee relationships that contribute to satisfactory productivity, motivation, morale, and discipline. They provide guidance, consultation, and assistance to management and employees on grievances and appeals, adverse actions, employee discipline, communication, employee benefits and services, and related matters.

LABOR RELATIONS SPECIALIST GS-233

Labor Relations Specialists are concerned with establishing and maintaining effective relationships with labor organizations that represent Federal employees. They advise and represent management in negotiating and administering labor agreements, resolving disputes, and otherwise conferring with labor organizations on a variety of labor relations matters. Some Labor Relations Specialists are involved in the Government-wide administration of the Federal labor relations program, involving such functions as policy development, agency guidance, and investigation and resolution of certain complaints and appeals.

EMPLOYEE DEVELOPMENT SPECIALIST GS-235

Employee development specialists consult with management and other officials regarding immediate and long-range →work force← and skill needs, plan and initiate training programs and develop training materials to meet these needs, and develop policies and procedures for employee development programs.

PART II: EXPERIENCE, EDUCATION AND OTHER REQUIREMENTS

EDUCATION OR EXPERIENCE REQUIREMENTS

Basic requirements for all positions

Candidates must have education or experience as described under A, B, *or* C below:

A. A 4-year course in an accredited college or university leading to a bachelor's degree;

OR

B. Three years of experience in work which provides evidence that the candidate has:
   1. A good general understanding of the systems, methods and administrative machinery for accomplishing the work of an organization;
   2. The ability to analyze problems and apply sound judgment in assessing the practical implications of alternative solutions;
   3. The ability to communicate with others effectively, both orally and in writing; and
   4. The capacity to employ these knowledges and abilities in resolving the problems presented by the assignment.

Such experience may have been acquired in any type of work *except:*

- Trades and crafts
- →Routine← clerical work

OR

C. Any time equivalent combination of education and experience as defined in A or B above. In combining education with experience an academic year of study which comprises 30 semester hours or 45 quarter hours will be considered equivalent to 9 months of experience.

Additional specialized experience requirements for all positions

1. *Amount of specialized experience required*

Grade	*Years*
GS–5	0
GS–7	1
GS–9	2
GS–11/15	3

Excess specialized experience may be substituted for general experience.

2. *Acceptable types of specialized experience*

A. *For Personnel Officer GS–201–11/15:*

(1) Experience as a personnel or industrial relations officer which has included responsibilities of the type described in part I of this standard. This experience may have been gained in the Federal Government, in State or local government, in private industry, in employee organizations or in the academic community. This experience may have been gained in highly responsible labor relations work with unions or employers, *provided* it involved consultation and negotiation on major issues of personnel policy at high organizational levels. *Or*

(2) Experience in any of the environments indicated above as a personnel specialist in any one, or any combination of the functional specializations of personnel work (i.e., staffing, position classification, employee relations, labor relations, wage administration, or employee development),[1] *provided* the experience clearly demonstrates:

(*a*) That the candidate understands the relationship of the specialization to the total personnel management process, and

(*b*) The candidate's ability to integrate his or her activities with associated personnel management functions.

B. *For Personnel Management Specialist GS–201–7/15:*

(1) Experience in substantive personnel management work of a type or in a combination of functions appropriate to the position to be filled; or

(2) Experience in substantive personnel management work in the *predominant* functional specialization of the position to be filled, *provided* the candidate's total background and experience gives evidence of—

(a) Understanding the relationship of work in that specialization to the other functional areas embraced in the position; and

(b) Ability to master the work of the other functional specialization involved in no more than six months.

C. For Personnel Staffing Specialist GS–212–7/15; Position Classification Specialist GS–221–7/15; Salary and Wage Administration Specialist GS–223–7/15; Employee Relations Specialist GS–230–7/15; Labor Relations Specialist GS–233–7/15; Employee Development Specialist GS–235–7/15:

(1) Experience in the specialized kind of work as described in part I of this standard; or

(2) Experience in a combination of the kind of work covered by the series involved and other substantive personnel management specialist work, *provided:*

(a) It can be clearly established that the candidate's total experience in the functional specialization of the position to be filled was at least one year, and

(b) At least 6 months of the experience in the functional specialization of the position to be filled was at a level of difficulty comparable to the next lower grade or the second lower grade.

[1] Refer to appropriate series definition and/or classification standard for specific description of work of specializations.

Substituting education for specialized experience

1. *For all positions at grade GS–7:* Completion of one year of graduate study which equipped the candidate with the knowledge and ability to perform fully the work of the position to be filled will satisfy the experience and education requirements for GS–7 positions.

2. *For positions at grades GS–9 and above:* For most positions at the GS–9 level and above, the knowledges and abilities required are not readily attainable through graduate study or legal education alone. However, under certain conditions, graduate study or a law degree may be accepted as meeting the experience requirements as follows:

a. *Graduate study* may be substituted for experience as shown below when:

(a) The position to be filled involves highly specialized program planning and development work which requires a broad and intensive knowledge of personnel systems and techniques; and

(b) The graduate level course work is directly relevant to personnel work.

In situations which meet these conditions, graduate study is qualifying on the following basis:

GS–9: Completion of all requirements for a master's or an equivalent degree, or two full academic years of graduate education,[1] which is in personnel management, industrial relations or directly related fields such as public administration, political science, business administration, psychology, labor relations, education. (This amount and kind of education meets all the requirements for grade GS–9.)

GS–11: Completion of all requirements for a doctoral degree (Ph. D. or equivalent), or three full academic years of graduate education,[1] which is in the fields listed under GS–9, above. (This amount and kind of education meets all the requirements for grade GS–11.)

b. *Legal education* may be substituted for experience as shown below when:

(1) The position to be filled involves the interpretation and application of highly specialized statutory and regulatory requirements and precedents in the personnel management field; and

(2) The legal course work is directly relevant to the work of the position to be filled.

In situations that meet these conditions, legal education is qualifying on the following basis:

For GS–9: Completion of at least six years of legal and prelegal education which meets all the requirements for an LL.B. or J.D. degree. (This amount and kind of education meets all the requirements for grade GS–9.)

Alternate requirements at GS–7

1. All of the experience and education requirements for grade GS–7 will be considered to be met by candidates who qualify on the Professional and Administrative Career Examination for GS–7.

2. The Superior Academic Achievement Standard in section III of part II of this handbook is applicable at grade GS–7.

Supervisory positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

Level of experience

Except for those who qualify solely on the basis of education, candidates for positions at grades GS–11 and below must have had at

[1] Part-time graduate education is credited on the basis of the number of hours determined by the school attended to be equivalent to a year of full-time graduate study. On that basis, part-time graduate education equal to one year of full-time study would be accepted for one year of specialized experience.

least six months of experience at a level equivalent to the next lower grade in the Federal service, or one year equivalent to the second lower grade. Candidates for grades GS–12 and above must have had at least one year of experience equivalent to the next lower grade.

PERSONAL ATTRIBUTES AND CHARACTERISTICS

Mere possession of the kinds and amounts of experience or education described above is not sufficient evidence of capacity to do the work required in this field. The total information available on each candidate must also show possession of the basic personal attributes and characteristics essential for successful performance in positions covered by this standard. Examples of these personal characteristics appear in part V of this standard on the suggested Qualifications Analysis and Appraisal Form for Personnel Positions and for Personnel Staffing Specialist Positions.

TEST REQUIREMENTS AND BASIS OF RATING

1. *For positions at grades GS–5 and GS–7:* A written test is required for competitive appointment. Rating will be based on the written test score combined with an evaluation of the education and experience record. For in-service placement actions in grades GS–5 and 7, a passing score is not required, but the test may be used, in combination with other evaluation methods, as one element in ranking employees for reassignment, promotion, transfer, reinstatement, or other internal placement into occupations covered by this standard (See *FPM Chapter 335, Promotion and Internal Placement.* The written test may not be waived for appointments outside the register.

2. *For positions at grades GS–9 and above:* No written test is required. Candidates will be rated on the basis of the quality and extent of their total experience, education, and training. Ratings will be based on statements in the application form and any additional evidence received.

INTERVIEW REQUIREMENTS

Candidates may, at the option of the agency, be required to appear for a preemployment interview to evaluate skill in personal relationships for public contact aspects of personnel work.

SELECTIVE PLACEMENT

Positions in the personnel field vary in functions, organizational settings, and operational conditions. Agencies are encouraged to utilize selective placement of candidates to assure an optimum match between the capabilities of candidates and the exact requirements of positions to be filled. Requests for registers based on selective placement needs should include a copy of the current position description, and data, if available, derived from any qualifications analysis of the type suggested in part V of this standard.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

PART III: SPECIAL PROVISIONS FOR ENTRY AND ADVANCEMENT

IN-SERVICE ENTRY TO PERSONNEL OCCUPATIONS

Positions covered by this standard may be filled without regard to the experience or education requirements of part II of this standard by in-service lateral reassignment of employees at grade levels *and* under conditions specified below.

Reassignment across personnel specialization lines

Employees may be reassigned across personnel specialization lines at grades GS-7 through GS-12, *provided:*

1. The actual qualification requirements of the position have been determined by means of a job analysis of the type described in part V of this standard;
2. The employee's total background demonstrates a good understanding of the general principles of personnel management, including those relating to the specialization involved; and
3. The employee rates high on almost all of the job elements identified as essential to top quality performance *except* the elements pertaining to knowledge of the particular personnel specialization. [In terms of the job analysis system described in part V of this standard, a high rating means rating "completely true" on almost all triple-checked items except those dealing with knowledge of the particular specialization.]

This provision permits reassignment of employees from Personnel Assistant, GS-203, to other personnel specializations.

Reassignment of employees from other fields

Employees with managerial experience in a substantive program, or nonclerical experience in related management fields (e.g., management analysis, budget analysis, financial management, equal employment opportunity, work force analysis and planning, administrative services) may be reassigned to positions covered by this standard at grades GS-7 through GS-11, *provided:*

1. The actual qualification requirements of the position have been determined by means of a job analysis of the type described in part V of this standard;
2. The employee's total background demonstrates a good understanding of the relationship of general management practice to the personnel management process; and
3. The employee rates high on almost all of the job elements identified as essential to top quality performance *except* the elements pertaining to knowledge of the particular personnel specialization.

Employees reassigned under this provision must serve at least 1 year in the specialization at the grade level at which reassigned before promotion within the specialization. If the reassignment is made in conjunction with a formal training plan, the required length of service may be reduced to 6 months.

Other reassignments

Employees may be reassigned from other fields or at grade levels above those specified above if the reassignment is made under an executive development agreement as provided in the Federal Personnel Manual, Chapter 412, Subchapter 2.

APPOINTMENTS, REASSIGNMENTS, AND PROMOTIONS TO POSITIONS AT GRADE GS-12 OR ABOVE

Basic concepts

The following special provisions govern appointments and reassignments at grade GS-12 and advancements from grade GS-11 to GS-12. They are designed to insure broad and balanced appraisal of each candidate in terms of:

1. Demonstrated capacity to relate the personnel management process to overall management concerns, and

2. Future growth potential.

One major distinguishing characteristic of personnel officer and personnel specialist positions at grade GS–12 and above is the requirement for depth of understanding and breadth of perspective regarding practical management problems. It is extremely important that employees selected to fill these positions have demonstrated ability:

1. To comprehend management goals and objectives;
2. To understand employee aspirations and goals;
3. To relate sound personnel management practice to the achievement of both management and employee goals; and
4. To employ good personnel practice in making a positive contribution to the overall problem-solving process of management.

Further, many GS–12 level positions are, in effect, the first major "stepping stone" to executive level personnel officer or specialist positions. Therefore, it is also vital to the ultimate objective of staffing executive level personnel positions with persons of optimum capability that careful consideration be given to the further "growth potential" of employees selected for appointment or advancement to the GS–12 level.

The decision to be made in filling positions at grade GS–12 and above is crucial to the careers of individuals considered as well as vital for the agency. Therefore, the decision should reflect the combined judgment of several knowledgeable observers.

Requirements

In the appraisal of candidates for GS–12 positions, the following requirements must be met:

1. The kinds of knowledges, skills and abilities required, and the degree to which they are important to quality performance must be determined and recorded. Part V of this standard provides a suggested job analysis system for developing and recording this type of information.
2. At least three persons must evaluate the capabilities of each candidate in relation to the requirements of the position to be filled and management positions in the career ladder. They must record their appraisals for consideration by the selecting official. Agencies may determine which persons will be asked to evaluate candidates, except that the selecting official should not be one of the raters. The following are recommended as possible raters for each candidate:

a. *For personnel officer positions:*
   (1) The personnel officer at the next higher organizational echelon.
   (2) The immediate supervisor of each candidate.
   (3) The immediate supervisor of the position to be filled.
   (4) A non-personnel management official (e.g., budget officer, financial manager, or line management official) whose organizational position and working relationship with a candidate enable him or her to provide a meaningful appraisal of the candidate's knowledge of and responsiveness to overall management problems.

b. *For personnel specialist positions:*
   (1) The personnel officer.
   (2) The immediate supervisor of each candidate.
   (3) The immediate supervisor of the position to be filled.
   (4) A non-personnel management official (e.g., budget officer, financial manager, or line management official) whose organizational position and working relationship with a candidate enable him or her to provide a meaningful appraisal of the candidate's knowledge of and responsiveness to overall management problems.

EVALUATING CANDIDATES FOR PERSONNEL OFFICER AND ASSISTANT PERSONNEL OFFICER POSITIONS AT GRADE GS-13 AND ABOVE

The procedures described below apply to the search for and evaluation of candidates for personnel officer and assistant personnel officer positions at grades GS-13 and above. [These procedures may also be followed in filling all personnel positions at key levels.]

Area of consideration

The importance of these positions warrants the consideration of candidates both within *and* outside the organizational entity in which a vacancy exists.

Use of evaluation panels

Evaluation panels shall be utilized to make a qualitative appraisal of the strengths and weaknesses of all qualified candidates to determine their relative grouping (e.g., "highly qualified," "fully qualified," or "qualified") for selection consideration. Information regarding the appointment and use of such panels is contained in FPM Supplement 335-1, Evaluation of Employees for Promotion and Internal Placement. Panels are required to record the basis for determining which individual candidates are included in the "highly qualified" group.

Qualifications investigations

Qualifications investigations shall be conducted on individuals in the "highly qualified" group. This requirement may be waived in the case of individuals for whom the selecting official has available information equivalent to that normally acquired in the course of a qualifications investigation.

PART IV: GUIDE FOR EVALUATION OF CANDIDATES

TECHNIQUES FOR APPRAISAL OF CANDIDATES

A number of appraisal devices can provide useful information for the evaluation and quality ranking of candidates in relation to the specific requirements of positions to be filled. Among these are:

1. Review of the candidate's work experience;
2. Review of information in the candidate's personnel records (e.g., commendations, awards, disciplinary actions, etc.);
3. Appraisal of samples of the candidate's work products;
4. Written qualifications appraisals;
5. Qualifications investigations;
6. Interviews.

Most of these devices are more efficient at measuring certain characteristics than they are at measuring others. Further, some characteristics may be measured usefully by more than one type of appraisal device. Thus, it is usually desirable to use a variety of techniques in the evaluation process. These techniques, and their appropriate application, are discussed in some detail in FPM Supplement 335-1, Evaluation of Employees for Promotion and Internal Placement.

QUALIFICATIONS INVESTIGATIONS

The evaluation of candidates for personnel officer or other key level positions may present particular problems arising from the fact that not all candidates are equally well known to the selecting officials. In order to insure that there is equivalent information available concerning all candidates, the use of qualifications investigations is desirable for all positions at the GS-13 level and above and is required for personnel officer and assistant personnel officer selections as specified in part III of this standard. These investigations involve personal interviews by a skilled investigator with persons likely to give pertinent testimony about the skills, knowledges, abilities and potential of the candidate, as demonstrated through prior work performance.

Qualifications investigations offer the important advantage that they develop information

that is not likely to be covered in a reference inquiry or voucher, or to be shown in the usual employment history. In addition, biased views (either favorable or unfavorable to the candidate) are more likely to be balanced out by the number of contacts and the objectivity of the investigator.

EVALUATING EDUCATION AND EXPERIENCE FOR POSITIONS AT GS–5 AND GS–7

The primary consideration in evaluating the quality of the education or experience offered by candidates for entry level positions is the degree to which it provides evidence of the personal attributes and potential essential to success in positions at full performance levels. Important attributes are:

1. Intellectual capacity and learning ability,
2. Breadth of interest,
3. Aptitude for successful personal relationships.

Education

In view of the breadth and functional diversity of the personnel management field, no particular major field of study or special course work is prescribed. In general, the candidate whose academic training has been broad in scope possesses a substantial base for future growth and development. Within this context, the candidate whose training has provided some familiarity with techniques for studying personnel or general management problems, and in applying knowledge developed in related disciplines to their solution, may be better prepared to assimilate further specialized training quickly than the candidate whose academic background has not included exposure to such matters. Courses in personnel or industrial relations, psychology or management may provide such exposure. as may certain courses in statistics, economics, sociology, or similar fields.

Academic achievement as indicated by grades obtained, class standing, or membership in honor societies is one evidence of intellectual capacity and learning ability. Training which has provided a broad academic background is one indicator of breadth of interest. Similarly, active participation in nonacademic campus activities, such as student councils, election to class office, →or other student activities,← is one indicator of aptitude for successful personal relationships.

Experience

The evaluation of general experience acceptable in meeting the requirements stated in part II of this standard requires particular care. Many types of experience may have provided evidence of the knowledges and abilities indicated in part II of this standard as essential for entry to personnel occupations. Following are examples of qualifying experience.

1. Experience in non-routine work as personnel assistant, management technician, →work force← assistant, budget assistant, or financial management assistant, →or equal employment assistant,← or in similar types of positions is qualifying if it required the candidate to gain and employ a good knowledge of:
   a. The structure and functions of →the employing organization;←
   b. The rules, regulations, precedent decisions, technical and administrative procedures which govern →the candidate's← work and their application in complicated, nonroutine, recurring matters.
2. Experience in independently contacting supervisors or employees throughout the organization served by the office to secure information needed by personnel management specialists, budget officers, financial managers, management analysts, →equal employment specialists← or others to act on technical problems when this required:
   a. A good understanding of the nature and complexity of a problem;
   b. Judgment to identify and select appropriate sources of information;
   c. Communications skill and persuasiveness to gather the data; and

d. Analytical ability to evaluate, arrange, and present responses.

3. Experience in giving advice or providing information on substantive personnel, budget, →work force analysis and planning, or equal employment opportunity,← or other matters when the answers are established but are not readily apparent and the work required:
   a. Analysis of complex inquiries;
   b. Judgment to select appropriate regulations or precedent decisions; and
   c. Skill in communicating complex details clearly, either orally or in writing.

The variety and progressive nature of work assignments should be considered as evidence of intellectual capacity and learning ability. Efforts at self development through outside training or course work should be taken into account in assessing both breadth of interest and career motivation. Skill in interpersonal relationships should be measured through inquiry directed to former supervisors and work associates.

EVALUATING SPECIALIZED EXPERIENCE FOR PERSONNEL OFFICER AND SPECIALIST POSITIONS

The elements indicated below should be considered in evaluating specialized experience:

Personnel officer positions

The evaluation of personnel officer experience should take into account the scope of the personnel program for which the candidate has been responsible and the degree to which the several functional program areas were developed. The greater the scope of the program and the higher the development of each function, the more credit should be given.

If a candidate has not had experience as a personnel officer, particular attention should be directed to the breadth and variety of experience in personnel management. Other things being equal, more recognition should be given to an applicant with technical experience in several functional areas than one with technical experience in only one or two functional specializations.

Usually, experience as a personnel officer will be of more value than other kinds of qualifying experience. However, there may be instances in which a candidate's specialist experience has been of such breadth and depth that it outweighs in value experience gained in a personnel officer position over a limited personnel management program.

→Experience as an equal employment specialist should also be given consideration in evaluating a candidate's qualifications when a close relationship exists between the actual equal employment opportunity (EEO) duties being performed and the requirements of the position being filled. The experience should be assessed on the basis of the breadth and depth of technical knowledge of personnel management the candidate would have acquired while performing the equal employment opportunity work.←

Any non-personnel experience which has contributed significantly to the candidate's knowledge of management should be taken into account in assessing breadth of experience. This includes experience as a management analyst, budget analyst, or administrative assistant or officer.

The total evaluation should include consideration of any leadership positions held. Supervisory experience in a personnel management function or in other management support work, such as management analysis, budget analysis, →or equal employment opportunity,← should be given distinct recognition.

Personnel specialist positions

Important points to be considered in evaluating experience for personnel specialist positions are:

1. The extent of knowledge and awareness concerning other personnel specializations

and management concepts and goals generally.

2. The depth of knowledge and ability in the specialization for which the candidate is being considered.

Supervisory experience in the specialization for which the candidate is being rated should be recognized as adding to the value of such experience.

Experience in personnel functions other than the one for which the candidate is being rated should be taken into account as contributing to the breadth of his total experience.

Experience as an instructor of courses in personnel administration or in related management fields should also be given appropriate credit in evaluating candidates.

Experience which clearly demonstrates that the candidate was required to work with specialists in personnel functions other than the one for which he or she is being rated should be given recognition.

→Experience in equal employment opportunity work should also be given recognition, provided that the candidate's total experience demonstrates a knowledge of the personnel management areas which are required to perform the duties of the position being filled. Since the content of EEO work varies widely from position to position, the actual work performed by the equal employment specialist must be analyzed to determine if it provided experience necessary to develop the technical personnel knowledges and skills required by the position being filled.←

The total experience evaluation should also take into account experience in other management support functions such as budget analysis management analysis, →or equal employment opportunity.← Experience of these types may contribute significantly to a candidate's understanding of the total management process.

PART V: GUIDE FOR ANALYZING JOB REQUIREMENTS AND FOR EVALUATING CANDIDATES IN RELATION TO JOB REQUIREMENTS

CONTENT AND USE OF THE GUIDE

Nature of materials provided

Two types of materials are presented here:

1. A suggested procedure for evaluating job requirements; appraising candidates; screening, ranking, and grouping candidates; and making selections; and
2. Suggested forms for recording judgments about a job and a candidate.

Application of the system

This system is designed for use in connection with any kind of personnel action (e.g., appointments from registers, appointments outside registers, lateral reassignments, merit promotions). It can be used in filling personnel positions at any grade level. The use of a system of this type is required in the situations set out in part III of this standard; it is recommended in all other situations.

SUGGESTED PROCEDURE

The suggested procedure which follows may be printed on the reverse side of the Qualifications Analysis and Appraisal Form, so that only one sheet is needed.

Determining job requirements

Two or more persons (including the immediate supervisor) who know the job well should determine the qualifications required.

Some elements known to be important in many personnel positions are listed on the form as ability statements. Every item listed is not significant in every job. Additional elements pertaining to the particular position should be added if needed. Then, for each ability statement, the degree of importance to the job should be recorded on the form according to "Instructions for Determining Job Requirements" on the forms.

Evaluating candidates

Obtain ratings of candidates with respect to the items checked in the job analysis from a sufficient number of individuals to provide a rounded picture of each candidate. Select individuals who know the candidate's work and behavior well. Ask each rater to rate each checked item according to the "Qualification Appraisal Instructions," to indicate the →nature of the work relationship← with the candidate (e.g., supervisor, colleague, customer, etc.), and to indicate the length of that association.

Screening, ranking, and grouping candidates

Any significant number of ratings in the columns "More False Than True" and "Not True" on the items that were double checked or triple checked in the job analysis should be a basis for eliminating candidates from further consideration.

The ratings, together with the job analysis results, may be used in a number of ways to rank or group eligible candidates. As one example, the candidates could be placed in one of three groups, i.e., "highly qualified," "fully qualified," or "qualified," on the following basis:

The "highly qualified" group includes candidates who have been rated "Completely True" on most items which have been either double checked or triple checked, and "More True Than False" on the remainder of such items.

The "fully qualified" group includes those who have been rated "More True Than False" on most items which have been either double or triple checked and "Completely True" on the remainder of such items.

The "qualified" group includes all others.

The ratings on the single-checked items, and the specific number of top ratings ("Completely True") on double- and triple-checked items may be used as a basis for ranking within the first two groups.

Making selections

Selection decisions should be based on careful evaluation of *all* information available about all candidates, including information obtained from interviews, application forms, personnel folders, qualification inquiries, qualifications investigations, and this type of job analysis.

Carefully and properly completed, the appraisal form should provide qualifications data on every significant job element. It permits consideration of all candidates on the same elements, and should provide adequate information on which to make a selection decision.

QUALIFICATIONS ANALYSIS AND APPRAISAL FORM FOR PERSONNEL POSITIONS

Name of Candidate	Position To Be Filled	Grade

INSTRUCTIONS FOR DETERMINING JOB REQUIREMENTS: Check column A as follows: √ for an ability that is desirable but not critical; √ √ if an ability is essential for acceptable performance; √ √ √ if an ability is essential to acceptable performance and a high degree of it is especially important for top quality performance.

2. **QUALIFICATION APPRAISAL INSTRUCTIONS:** From your personal knowledge give your evaluation on each checked item by marking the column C thru G which best expresses your appraisal of the candidate. Base your evaluations on firsthand knowledge only. If your knowledge of the candidate's job behavior on any marked element was heard from someone else, mark that element under column G, "Don't Know."

Degree of importance of element to job (*Indicate √; √ √; or √ √ √*) (A)	Ability statements representing job elements (B)	Completely true (C)	More true than false (D)	More false than true (E)	Not true (F)	Don't know (G)
	1. Shows a good theoretical knowledge and practical understanding of basic relationships of personnel management functions, theories, and techniques.					
	2. Is competent in matters pertaining to: a. Recruitment, selection and staffing					
	b. Examining					
	c. Position classification					
	d. Salary and wage administration					
	e. Employee development and training					
	f. Employee relations					
	g. Labor relations					
	h. Equal employment opportunity					
	3. Demonstrates a good knowledge of, and skill in the use of the following: a. Job analysis techniques					
	b. Interviewing techniques					
	c. Personnel measurement devices and techniques					
	d. Negotiating and bargaining techniques					
	e. Adult education and training devices and techniques					
	f. Information gathering or data collecting techniques					
	g. Techniques of constructing salary and wage schedules					
	h. Statistical methods and techniques					
	4. Understands the ways in which personnel management can help an organization achieve its goals.					
	5. Relates personnel functions to the achievement of effective, economical management and operations.					
	6. Fosters in managers and employees an attitude of responsive service to the public.					
	7. Displays ability to develop effective communications between management, employees, and employee groups.					
	8. Shows the ability to analyze complex problems.					
	9. Demonstrates creativity in devising solutions to personnel management problems.					
	10. Shows the ability to carry through an assignment.					
	11. Demonstrates the ability to gain acceptance of recommendations.					
	12. Displays effectiveness in personal work relationships with all levels of responsibility both within and outside the organization.					
	13. Demonstrates skill in oral expression.					
	14. Demonstrates skill in written presentations.					
	15. →Shows an← ability to manage a program.					
	16. →Shows an← ability to develop, motivate and manage a staff.					
	17. Demonstrates the capacity to make sound decisions.					
	18. Other.					
	19. Other.					

Relationship with candidate	From	To	Your present position or title
Employer or superior			
Fellow employee			
Other (*Specify*)			Signature / Date

UNITED STATES CIVIL SERVICE COMMISSION

CS–200
(p. 14)

PERSONNEL MANAGEMENT AND INDUSTRIAL RELATIONS GROUP

QUALIFICATIONS ANALYSIS AND APPRAISAL FORM FOR PERSONNEL STAFFING SPECIALIST POSITIONS

Name of Candidate	Position To Be Filled	Grade

1. INSTRUCTIONS FOR DETERMINING JOB REQUIREMENTS: Check column A as follows: √ for an ability that is desirable but not critical; √ √ if an ability is essential for acceptable performance; √ √ √ if an ability is essential to acceptable performance and a high degree of it is especially important for top quality performance.
2. QUALIFICATION APPRAISAL INSTRUCTIONS: From your personal knowledge give your evaluation on each checked item by marking the column C thru G which best expresses your appraisal of the candidate. Base your evaluations on firsthand knowledge only. If your knowledge of the candidate's job behavior on any marked element was heard from someone else, mark that element under column G, "Don't Know."

Degree of importance of element to job (*Indicate* √; √ √; *or* √ √ √) (A)	Ability statements representing job elements (B)	Completely true (C)	More true than false (D)	More false than true (E)	Not true (F)	Don't know (G)
	1. Shows good professional knowledge and practical understanding of basic relationships of personnel management functions, principles and techniques relating to personnel staffing.					
	2. Is knowledgeable of the application of rules, regulations and statutes of personnel staffing work in carrying out a personnel program in: (a) Federal service					
	(b) public sector					
	(c) private sector					
	3. Is competent in matters pertaining to personnel staffing work: a. *Staffing:* Competent in the application of job analyses and in the development or application of qualification standards or other rating guides.					
	b. *Examining:* Competent in the application of qualification and the use of classification standards, and of the development of rating schedules; and has knowledge of the methods for job analysis, selection process and examining.					
	c. *Recruitment:* Competent in dealing with representatives from a wide variety of professional associations and organizations to develop recruitment sources; and skill in interviewing and counseling techniques, developing media strategies and developing recruitment advertisements.					
	4. Has a practical understanding of the basic principles and techniques of position classification, employee relations, equal employment opportunity and labor relations, in their relationship to the staffing process.					
	5. Demonstrates a good knowledge of, skill in, or ability to use the following: a. Job analysis techniques					
	b. Interviewing techniques					
	c. Personnel measurement devices and techniques d. Negotiating techniques e. Information gathering or data collecting techniques.					
	6. Understands the ways in which personnel management can help an organization achieve its goals through an effective and economical personnel management program.					
	7. Fosters in managers and employees an attitude of responsive service to the public. 8. Displays ability to develop effective communications between management, employees, and employee groups in order to gain acceptance of personnel programs.					
	9. Shows the ability to analyze complex problems relating to the development and/or implementation of personnel procedures.					
	10. Demonstrates creativity in devising solutions to personnel management problems that impact on organizational programs.					
	11. Shows the ability to apply or devise effective plans, procedures or methods to carry out work assignments.					
	12. Demonstrates the ability and skill to gain acceptance through oral expression of recommendations and/or decisions based upon well developed facts.					
	13. Demonstrates the ability and skill to gain acceptance through written presentation of recommendations and/or decisions based upon well developed facts.					
	14. Shows an ability to manage a program.					
	15. Shows the ability required to develop, motivate and manage a staff.					
	16. Other.					

Relationship with candidate	From	To	Your present position or title
Employer or superior			
Fellow employee			
Other (*Specify*)			Signature / Date

(TS–167)
August 1978

al employment opportunities to members of the general public; determining the appropriate competitive examination announcements for specific jobs or occupations; explaining standard examining or employment requirements such as the form needed, time period for renewing eligibility, option for noncompetitive reinstatement, and veterans' preference in the employment process; and identifying employment offices in the geographic area.

—*Personnel Clerk*

- In classification clerical activities, experience in applying knowledges such as the structure of occupational codes for Federal civilian positions, the cyclic review reporting requirements, position numbering and control procedures, and the structure of the organizations served.

  This experience may have been acquired through the performance of such duties as routinely determining authorization of identical-additional positions; adjusting records to show establishment, cancellation or change in the classification of positions; explaining procedures for submission of reclassifications; preparing cyclic review listings and following up on overdue reports; and reconciling organzational files with master personnel files and drawing organizational charts.
- In employee development clerical activities, experience in applying knowledges such as the requirement and options for processing training requests, training contracts, and career development documents; and procedures for controlling training funds.

  This experience may have been acquired through the performance of a variety of duties, such as explaining procedures for submitting training requests; reviewing training requests for adequacy and resolving factual discrepancies; coding data for an automated system; coordinating notification of employees approved for training, dates of classes, and changes in schedules; verifying that training was completed; and maintaining records of monies spent for various kinds of training and career development.
- In incentive awards clerical activities, experience in performing a range of procedures for processing a variety of awards under the Incentive Awards Program; experience in adding and computing averages; and skill in composing correspondence using forms or sample letters.

  This experience may have been acquired through the performance of a variety of duties, such as explaining procedures for submission of incentive awards and quality step increase recommendations; determining the routing of suggestions for evaluation and following up on overdue comments; identifying employees eligible for length-of-service awards; writing letters acknowledging receipt of new employee suggestions or the Committee's decision not to adopt a suggestion; collecting statistical data and preparing computations such as the percentage of participation by organization.

—OR—

2. For lateral reassignment across personnel specialization lines, a background of experience which includes Federal civilian personnel clerical work at the GS-5 level which provided an understanding of the nature of personnel clerical work, the organizations served, the flow of work, approving authorities, etc., sufficient to perform the duties of the position being filled (e.g., depending upon the structure of work within personnel offices, personnel actions clerks may deal with kinds of data, documents, and processes similar to those in work performed by staffing clerks).

—AND—

3. Evidence of possession of any selective factors appropriate to the position to be filled.

For the GS-6 Clerical Level

1. A background which includes at least one year of GS-5 clerical experience performing a wide variety of interrelated or nonstandard procedural assignments and resolving a wide range of clerical problems in the same line of work as the position being filled.

   Example: Experience in determining the steps to be taken in processing a wide variety of unrelated personnel actions in different situations with different treatment; and in resolving problems such as discrepancies in employee pay resulting from errors at some point in the processing of documents leading to the pay check, or failure of health insurance carrier to honor employee claims for benefits

—AND—

2. Evidence of possession of any selective factors appropriate to the position to be filled.

B. Minimum Qualification Requirements for Personnel Assistant Positions

Personnel assistant positions often include continuing clerical assignments as well as limited technical work. Therefore, these positions are usually filled through in-service placement of personnel clerical employees in the same or related personnel organizations.

For the GS-5 Assistant Level—

1. A background which includes at least 1 year of GS-4 clerical experience applying a standardized body of specialized personnel rules, conditions, requirements, and options to perform or explain a range of technical and clerical procedures in the personnel specialty or program area of the position being filled. (See examples under the minimum requirements for the GS-5 Clerical Level.)

—OR—

2. For lateral reassignment across personnel specialization lines, a background of experience which includes Federal civilian personnel technical or clerical work at the GS-5 level which provided an understanding of the nature of substantive personnel work, conditions of employment, approving authorities, etc., in the position to be filled. For example, an employee at the GS-5 level in an equal opportunity specialty may have acquired an understanding of recruitment, selection, and promotion procedures; career ladders; and the kinds of forms and personnel records maintained to meet the minimum requirements for an assistant position at this level in the staffing or employee relations specialties.

—AND—

3. Evidence of possession of any selective factors appropriate to the position being filled.

For the GS-6 Assistant Level—

1. A background which includes at least 1 year of progressively responsible experience at the GS-5 personnel assistant level in the same personnel specialty as the position to be filled.

—OR—

2. A background which includes at least 1 year of progressively responsible experience at the GS-5 level which involved independently initiating, planning, and coordinating all or a segment of the clerical work in the same personnel specialty as the position to be filled. Such experience may have required the application of a knowledge of personnel operations and locally established program requirements, priorities, and practices to initiate, plan, and coordinate a series of interrelated clerical activities to meet the needs of varying circumstances.

—OR—

3. A background which includes a combination of personnel assistance and clerical experience as described in (1) and (2) above.

—AND—

4. Evidence of possession of any selective factors appropriate to the position being filled.

For the GS-7 Assistant Level—

1. A background which includes at least 1 year of progressively responsible personnel assistant experience at the GS-6 level applying a practical knowlege of specialized personnel methods, regulations, or principles in doing routine technical work of a noncontroversial nature in the same personnel specialty as the position to be filled. This usually includes experience in conducting interviews to develop facts such as job content or circumstances concerning an incident; analysis of readily understood technical subjects or kinds of work; composition of narrative reports, questionnaires, summaries, or letters explaining routine technical actions. Examples:

—Classification Assistant

- Applying routine job analysis techniques and classification principles in limited technical tasks involving noncontroversial situations and a few kinds of lower grade positions.

  This experience may be acquired through the performance of such work as interviewing supervisors to determine that the content of a job warrants use of an IA position number; reviewing a competitive level system for discrepancies and adequacy of justifications and rewriting justifications for review by classifiers; identifying classification criteria in standards and preparing questions to be asked during a desk audit to elicit appropriate data; conducting random sample audits to determine currency of PD's and organizational data; and writing amendments to update duties in PD's.

—Employee Development Assistant

- Applying knowledges related to employee development principles and potential subject-matter resources in limited technical support work.

  This experience may have been acquired through the performance of various kinds of work, such as selecting trainees on the basis of relatedness of subject matter to the mission or organization when courses are oversubscribed; reviewing catalogs and contacting libraries for suitable films to preview and show; demonstrating use of self-teaching equipment; ascertaining that employees have prerequisites for courses, e.g., grade level and previous courses completed; revising questionnaires to survey employee interest in specific training seminars; interviewing interns and employees in upward mobility programs at various stages of development to verify progress, ascertain continued interest, and determine if there are any problems; and substituting similar courses to resolve conflicts in study/work/leave schedules.

—Employee Relations Assistant

- Applying regulations concerning Federal employee benefits, fact-finding to investigate noncontroversial cases by obtaining relevant facts; evaluating the adequacy of these facts in light of established precedents; and explaining options available to the employee based upon circumstances of individual cases.

  This experience may be acquired through the performance of work involving investigating and developing facts concerning on-the-job injuries or illnesses; processing routine claims which require identifying and substantiating relevant information in narra-

tive reports; coordinating details of cases between employees, supervisors, medical officers, and the claims office; explaining options regarding leave for time off the job and potential compensation; and writing draft instructions concerning the Federal workers' compensation program.

- Applying knowledge of regulations and requirements pertaining to the incentive awards program to review the subject matter of suggestions for similarities to previous submissions and to select appropriate reviewing officials or to interview employees and supervisors to obtain additional information.

This experience may be acquired through the performance of a variety of work, such as obtaining documentation regarding the nature and extent of potential tangible and intangible benefits both installation and agency-wide; screening justification for performance awards for factual documentation; recommending dollar amount or award based on local precedent and regulations; preparing awards for publication; and composing letters outlining reasons why submissions could not be approved.

—Labor Relations Assistant

- Applying a practical knowledge of labor relations and the content of negotiated agreement(s) to perform limited technical work involving recurring types of questions, simple explanations of personnel policies, and development of facts of cases.

This experience may be acquired through the performance of work involving screening union questions or complaints; drawing out facts to determine the nature or scope of problems; informally resolving recurring questions that can be satisfied by the explanation of basic personnel policies such as approvals of sick leave or use of AWOL; interviewing operating supervisors to develop facts about reported rumors or to obtain background information regarding particular incidents or working conditions; and summarizing facts for use by the labor relations specialist.

—Staffing Assistant

- Applying a practical knowledge of evaluation techniques and staffing (examining, recruiting, or placement) principles to perform, for example, limited technical work involving recurring vacancies and readily understood kinds of work or lower grade positions; or to screen applicants for entry on an inventory of eligibles on the basis of minimum experience and educational requirements.

This experience may be acquired through the performance of work such as interviewing supervisors to determine the adequacy of a previous job vacancy announcement and the nature of changes to be made, or to discuss similar jobs in recurring vacancies for which the same recruitment source might be appropriate; screening applications (including substituting education for general or specialized experience) to determine that minimum requirements are met for initial entry on a deferred-rated competitor inventory or applicant supply file; evaluating the relative value of individual qualifications using specified factors to place applicants in rank order on an inventory or register used to fill a few kinds of related lower grade positions, e.g., promotion register for stenographers or clerks used to fill positions installation-wide.

—AND—

2. Evidence of possession of any selective factors appropriate to the position to be filled.

For the GS-8 Assistant Level—

1. A background which includes at least 1 year of progressively responsible experience at the GS-7 level applying knowledge of specialized personnel methods, regulations, principles or concepts in the same personnel specialty as the position to be filled. This knowledge is used to perform projects such as recommending changes to local personnel instructions; analyzing a variety of specific lower grade positions; and investigating employee complaints, problems, or infractions of rules. At this level, interviewing, analysis, and writing skills are used in connection with moderately complex personnel subjects and techniques, or a variety of specific clerical, technical, or entry-level professional and administrative jobs.

—AND—

2. Evidence of possession of any selective factors appropriate to the position to be filled.

C. *Quality Ranking Factors*

In addition to minimum qualifications, agencies may develop and apply quality ranking factors on the basis of local needs. Because quality ranking factors relate to work behaviors not specifically covered by the minimum requirements, they identify *better qualified* candidates from a group of persons who are basically qualified for the position. FPM chapter 332, subchapter 4 and appendix B, provide guidance on the use of quality ranking factors.

1. The following are examples of quality ranking factors which may be applied to the extent that they reflect work behaviors in *personnel clerical positions*, along with examples of how the skills or knowledges may be obtained.
   a. Knowledge of the specialized nature of personnel data needed and the responsibility of various individuals, officials, or organizational units in connection with the processing of forms and documents.
      —Processing personnel action requests requiring knowledge of the occupational coding structure, position numbering and control system, nature of action terms, regulatory authorities, paysetting procedures, requirements for eligibility for Federal employee benefits, etc. The requests are initiated in administrative offices and forwarded through various approving offices, e.g., the classification, staffing, and processing units.
      —Processing employment applications in examining offices or in agency personnel offices; e.g., determining the presence of supplemental questionnaires and documentation such as college transcripts and honorable discharges from military services; reviewing completed requests for certificates of eligibles for compliance with selection procedures; and applying basic evaluation techniques.
   b. Skill in entering data into an automated data system.
      —Using a variety of codes and specific coding instructions to enter data into automated records; e.g., master personnel records, training records, skills bank, master organizational records, through preparing code sheets or keying data using a remote control terminal.
   c. Skill in applying a knowledge of the format and procedures for preparing correspondence.
      —Typing various kinds of memorandums, forms, and letters with different formats, signature blocks, organizational codes, or other specific requirements, and assembling copies for file and different echelons.
   d. Skill in scheduling and arranging events.
      —Arranging or scheduling meeting places (for rating panels, hearings, training, testing, etc.); ordering equipment (microphones, easels, etc.); planning seating arrangements; notifying participants of time/place; assuring

adequate stock of handouts; making housing arrangements for out-of-town attendees; and/or making appointments for the supervisor and maintaining the supervisor's calendar.

e. Skill in maintaining office files.

—Maintaining a variety of records such as making computer entries to record information; maintaining office copies of regulations (agency publications, FPM and other OPM issuances); maintaining official subject-matter publications (classification or qualification standards, film library, training or coding manuals, etc.); and/or transferring, retiring, or disposing of records according to regulations.

f. Skill in applying knowledge of the organization served.

—Maintaining master records or directories of organizations served; contacting originators of forms (personnel action requests, time cards, etc.) in various organizations to resolve irregularities; and/or sorting mail by relating subject matter to organizational mission.

2. The following are examples of quality ranking factors which may be applied to the extent that they reflect work behavior in *personnel assistant positions,* along with examples of how the skills or knowledges may be obtained.

a. Skill in oral communications, in order to deal effectively and equitably with others.

—Conducting interviews, orientation, or training; explaining Federal employee benefits, personnel procedures, and/or employment opportunities; etc. Toastmaster/mistress activities and successful completion of undergraduate courses in speech or public speaking may also indicate skills in oral communication.

b. Skill in written communications, in order to use proper English grammar and correct spelling to impart factual information in an understandable manner.

—Writing letters, memorandums, reports, evaluation statements, position descriptions, or summaries of incentive awards or training courses; writing meeting minutes or narratives; editing newsletters; etc. Successful completion of undergraduate courses in English composition, technical report writing, or journalism may also indicate skills in written communications.

c. Ability to analyze, in order to identify and compare facts and draw conclusions or correct implications.

—Reading and applying Federal rules, guidelines, standards, policies, and directives relating to various functional areas of personnel; gathering relevant facts about a situation and using the appropriate references to make judgmental decisions or to suggest solutions; etc.

MILITARY PERSONNEL CLERICAL AND TECHNICIAN SERIES[1]

Military Personnel Clerk[2]

Supervisory Military Personnel Clerk GS–5/7

Military Personnel Technician (All Specializations)

Supervisory Military Personnel Technician (All Specializations) GS–6/12

DESCRIPTION OF WORK

Military personnel clerks perform a variety of clerical tasks in processing personnel actions and records, or clerical duties in support of various military personnel administration programs and systems operations. Work requires (1) applied knowledge of the purposes, content, and use of military personnel records, and ability to analyze, determine accuracy of, or complete various records and forms; (2) knowledge of and ability to relate military personnel regulations and established procedures to specific cases; (3) ability to give and secure information orally or in writing; and (4) knowledge of military organization.

Military personnel technicians perform a variety of technical work which is usually related to some phase of a major specialization category. Such work may take the form of assisting an officer in charge of a narrow subject or functional program operation or performing as an independent worker. In general, the work involves a case by case application within established administrative systems and methods. It involves application of extended knowledge, training, and experienced judgment in situations involving decision and action beyond the clerical framework of procedures, regulations, precedents, and instructions. This work requires demonstrated aptitude for analysis, reasoning, and decisionmaking and ability to accomplish results through communication.

[1] This standard supersedes the standard for this series which was issued in December 1967.

[2] Qualification standards for Clerk GS–300–1/3 are to be used for filling military personnel clerk positions in grades below GS–4. Qualification standards for "Supervisors of Work Classifiable at One-Grade Intervals" are to be used for filling supervisory military personnel clerical and assistant positions.

(Additional information should be obtained from the position classification standard for this series.)

EXPERIENCE, TRAINING AND RELATED REQUIREMENTS

Applicants must have experience of the kind and length shown in the following table:

Grade	Total experience (years)	General experience (years)	Specialized experience (years)
GS–4	2	1½	½
GS–5	3	1½	1½
GS–6	4	1½	2½
GS–7 and above	5	1½	3½

General experience is progressively responsible general office clerical experience which has demonstrated the ability to perform clerical duties satisfactorily; and/or any successful experience of an administrative nature in an office situation which included clerical functions. Any excess of specialized experience may be applied toward the general experience requirements.

Specialized experience is progressively responsible clerical experience in various occupations which provide skills and knowledges in tasks involved in the position to be filled, such as: (1) revising and verifying the accuracy of information contained in records by use of other records, publications, reports, correspondence, etc.; (2) examining reports, forms or other documents to insure completeness and conformity with applicable rules, regulations and procedures; (3) extracting numerical or detailed information from various sources to compile data for records, reports or other documents; (4) searching for information to provide answers to specific questions or problems by referring to applicable rules, regulations, or procedures; (5) reviewing cases, records, or correspondence and taking action to seek verification of factual data; (6) explaining verbally or in writing information on the procedures in filling out forms or applications, action taken on a specific case, or providing a variety of factual information requested.

QUALITY OF EXPERIENCE

For positions at any grade, the required amount of experience will not in itself be accepted as proof of qualification. The applicant's record of experience and training must show that he or she has the ability to perform the duties of the position. In addition, for all positions at the GS–4 level, candidates must have had at least 6 months of specialized experience comparable in difficulty and responsibility to the GS–3 level. For positions at grades GS–5 and above, candidates must have had at least 1 year of specialized experience comparable to the next lower grade in the Federal Service, or 2 years comparable to the second lower grade in the Federal Service.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Study successfully completed in an accredited college or university or other institution for which high school graduation or the equivalent is a prerequisite may be substituted for a maximum of 3 years of experience (1½ years general plus 1½ years specialized) as follows:

GS–4: Successful completion of two years of study above the high school level.

GS–5: Successful completion of four years of study above the high school level.

An "academic year" consists of approximately 36 weeks of full-time study.

A. The first 2 academic years of study may have been gained in
   (1) business or secretarial school or other comparable institution above the high school level (*a*) where such subjects as business English, office machines, filing and indexing, office practices, business mathematics, bookkeeping or accounting are studied (no credit is allowable for training obtained only or primarily in the basic skills of shorthand or typing or refresher courses); and (*b*) full-time (or prorated part-time) study is the equivalent of at least 20 classroom hours of instruction per week plus necessary outside study; or
   (2) college, university, junior college, or community college.

B. In order to be creditable the 3rd and 4th year of study must have been gained in a college or university; such study should have included a minimum of 6 semester hours, or the equivalent, per year, in subjects which can be usefully related to military personnel administration activities. (Examples of such subjects include English composition, journalism, or other courses pertinent to skills in written communication; public administration, personnel administration, industrial relations, organization and management, management analysis, or other courses pertinent to personnel and general administration; statistics, library science, records management, or other courses pertinent to numerical and systems documentation, techniques, and reporting; psychology, sociology, or other courses pertinent to behavioral understanding; military science or other courses pertinent to military organization, philosophy, and practices; public speaking, oral reading or other courses pertinent to oral communication.)

Completion of course work in Armed Forces Technical Schools in the military personnel field may be substituted for specialized experience on a month-for-month basis.

WRITTEN TEST

Applicants for a competitive appointment to grade GS–4 must pass an appropriate written test. The test may be waived for competitive actions for those applicants who qualify on the basis of military personnel clerical or technician experience. For inservice placement actions, the written test is not required; if a test is used, it may not be used on a pass/fail basis. For information on when and how a test may be used in evaluating eligible employees, see FPM Supplement 335–1.

MILITARY PERSONNEL MANAGEMENT SERIES

For Positions in the Military Personnel Management Occupation, GS–205 Grades GS–5/15

DESCRIPTION OF WORK

Military personnel management positions involve (1) directing or assisting in directing a military personnel management program, or (2) advising on, supervising, or performing specialized military personnel management or military personnel research work. Some positions also involve providing staff leadership and technical guidance for military personnel management or military personnel research programs.

EXPERIENCE REQUIREMENTS

Except for the substitution of education for experience, as provided below, candidates must demonstrate that they have the amount, type, and quality of general and specialized experience as follows:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11 and above	3	3	6

General experience

General experience is administrative, managerial, supervisory, investigative, technical, or other experience that has demonstrated the candidate has: (1) An understanding of the system, methods, and administrative machinery for accomplishing the work of an organization; (2) ability to analyze problems and apply sound judgment in assessing the practical implications of alternative solutions; (3) ability to communicate with others effectively, both orally and in writing; and (4) the capacity to use these knowledges and abilities in resolving the problems presented by the assignment. Experience in trades, crafts, or routine clerical work is not qualifying.

Specialized experience

Specialized experience is experience that provided a thorough knowledge of the basic concepts, principles, and theories of personnel management, and required adapting them to meet the unique organizational, staffing, management, and mission requirements of a military department or organization.

Level and quality of experience

Except for those who qualify solely on the basis of education, candidates for GS–11 and below positions must have had at least 6 months of experience at a level equivalent to the next lower grade in the Federal service, or 1 year of experience at a level equivalent to the second lower grade in the Federal service. Candidates for GS–12 and above positions must have had at least 1 year of experience at a level equivalent to the next lower grade in the Federal service. For positions at any grade level, the required experience will not be accepted, by itself, as proof of qualification. The candidate's record of experience and education must demonstrate the ability to perform the duties of the position in a satisfactory manner.

SUBSTITUTION OF EDUCATION

For general experience

Successfully completed undergraduate study in an accredited college or university may be substituted for general experience at the rate of 1 academic year (i.e., 30 semester or 45 quarter hours) of education for 9 months of general experience, up to a maximum of 4 academic years of education for 3 years of general experience.

For specialized experience

GS–7: All experience and education requirements for grade GS–7 will be considered to be met by candidates who: (1) qualify in the Federal Service Entrance Examination for GS–7; (2) qualify in the Management Intern Examination for GS–7; or (3) have successfully completed 1 academic year (i.e., 30 semester or 45 quarter hours) of graduate study in the social

or behavioral sciences, or in such fields as personnel management, industrial relations, industrial engineering, labor relations, management, business administration, public administration, government, psychology (particularly study oriented primarily toward personnel measurement and evaluation or toward vocational counseling), sociology (particularly study related to military situations, industrial situations, administration, organizational analysis, and the communication process), and education (particularly study related to learning theories, tests and measurements, individual development, career planning, vocational guidance, and evaluation of instruction).

GS–9 and GS–11: For most positions GS–9 and above, the knowledges and abilities required are not readily attainable by graduate study alone. However, additional graduate study may be accepted as meeting the specialized experience requirements for GS–9 and GS–11 positions when:

(1) The position to be filled involves highly specialized program planning and development work which requires a broad, intensive knowledge of personnel management systems and techniques; *and*

(2) The graduate level education is directly relevant to the work to be performed.

In such situations, 2 academic years of graduate study, or completion of all requirements for a master's or equivalent degree, may be substituted for 2 years of specialized experience to meet all experience and education requirements for the GS–9 level; and a doctoral degree (Ph. D. or equivalent) may be substituted for 3 years of specialized experience to meet all experience and education requirements for the GS–11 level.

SUPERVISORY POSITIONS

For supervisory positions, see the Qualification Standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook.

WRITTEN TEST

GS–5 and GS–7

For competitive appointment, a written test is required for grades GS–5 and GS–7. For in-service placement actions at grades GS–5 and GS–7, the test may be used, in combination with other evaluation methods, as one element in ranking employees for reassignment into or promotion within this occupation. (See FPM Supplement 335–1: Evaluation of Employees for Promotion and Internal Placement, especially Appendix A: Guidelines for Use of Written Tests.) The written test may not be waived for appointments outside the register.

GS–9 and above

No written test is required for positions grades GS–9 and above.

BASIS OF RATING

GS–5 and GS–7

For positions grades GS–5 and GS–7, rating will be based on the written test score combined with an evaluation of the experience and education record.

GS–9 and above

For positions grades GS–9 and above, rating will be based on the quality and extent of total experience, education, and training. Ratings will be made on the basis of statements in the application form and any additional evidence received.

INSERVICE ENTRY INTO THE MILITARY PERSONNEL MANAGEMENT OCCUPATION

Lateral entry

Although the total length of experience required cannot be waived, the specialized experience and education requirements may be waived for employees with (1) managerial experience in an administrative or operating program, (2) nonclerical experience in related management fields (e.g., manpower planning, civilian personnel management, personnel measurement and evaluation, management analysis, or

financial management), or (3) experience in military personnel technician work, for lateral reassignment to positions covered by this standard at grades GS–7 through GS–11, if the employee's overall background demonstrates an understanding of the relationship of military personnel management to the overall management process. Employees reassigned under this provision must serve at least 1 year in the military personnel management occupation at the grade level at which reassigned before becoming eligible for promotion in the military personnel management occupation.

Entry by promotion

For positions grade GS–9 and below in the military personnel management occupation, military personnel technician experience may be credited as specialized experience provided:

(1) The actual qualification requirements of the position to be filled have been determined by means of job analysis; *and*

(2) The candidate rates high on almost all of the job elements identified as essential to top quality performance; *and*

(3) There is clear evidence that the military personnel technician experience provided the candidate with a thorough knowledge of the basic concepts, principles, and theories of personnel management.

SELECTIVE PLACEMENT

Some positions in the Military Personnel Management Series may require particular background knowledges and experience. In filling such a position, consideration may be limited to candidates who possess the type of background knowledges and experience to perform the duties of the position.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, candidates must possess emotional and mental stability.

Contractor Industrial Relations Specialist
Supervisory Contractor Industrial Relations Specialist
GS-9/15

DESCRIPTION OF WORK

The work of employees in this series is concerned with industrial relations matters affecting agency procurement of materials and services from private contractors. Employees in these positions serve as liaison on these matters between the agency and the contractor, and the agency and labor. They are responsible for assuring contractor compliance with applicable provisions of labor laws, standards, and terms under the contract, and for promoting harmonious labor relations in order to maintain an uninterrupted flow of procurement of materials and services.

The work involves such functions as: (*a*) Keeping agency officials currently informed and advising them on contractor industrial relations matters; (*b*) representing the agency on these matters to the contractors, to labor organizations, and to other Federal and State agencies concerned; (*c*) advising agency officials on proposed contractors' labor capabilities (e.g., available manpower supply and skills); (*d*) as appropriate, obtaining and furnishing pertinent area wage and salary information, and making determinations regarding the appropriateness of wage rates, and advising on the reasonableness of executive salaries and other personnel expenses, such as fringe benefits, in terms of effect on costs under a contract; (*e*) administration of compliance programs (includes making continuing review of contractor records such as payroll data, to assure reasonableness of job classifications and pay rates, hours of work, overtime pay, etc.; investigating employee complaints and discrepancies in the records; and, in the case of violations, negotiating for voluntary settlement, and recommending corrective or punitive measures); (*f*) promoting harmonious labor relations in the interest of avoiding stoppages of work under the contract (may include aiding in the prevention of friction between labor and management, or expediting the resolution of differences between them); and (*g*) obtaining cooperation of the disputing parties in the removal of critical materials from strike-bound facilities.

EXPERIENCE, TRAINING AND RELATED REQUIREMENTS

Except for the substitution of education as provided for below, applicants must show that they have had the amount of general and specialized experience indicated in the table below and of the type and quality described in the paragraphs following:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-9	3	2	5
GS-11/15	3	3	6

General experience

Experience in administrative, professional, investigative or other responsible work which gives evidence of ability to assume progressive responsibilities as a contractor industrial relations specialist.

Qualifying general experience includes work which, for example, provided evidence of ability to meet and deal effectively with people (e.g., as a personnel specialist, grievance counselor, or in public relations work); to collect, assemble, and analyze pertinent facts (e.g., as a claims investigator or in review and analysis work); or to understand governmental types of contracting (e.g., as a contract negotiator); or to plan and develop procedures (e.g., as a management analyst). Work which involved program planning or administrative management in fields other than contractor industrial relations is also qualifying as general experience.

Nonqualifying general experience

Experience in trades, crafts or routine clerical work is not qualifying.

Specialized experience

Experience concerned with the interpretation, application, administration, or enforcement of

labor laws, executive orders, regulations, standards or contract provisions relating to wages, hours, working conditions, etc.; experience which provided knowledge of industrial personnel practices and of related management operations; or experience which provided understanding of labor-management relationships and problems. For all positions, the total record of specialized experience must demonstrate that the applicant has the following skills and knowledges, to the degree appropriate to the grade level:

(1) Ability to work harmoniously and effectively with others in problem situations. This may be demonstrated through experience gained, for example, as a representative of a governmental organization concerned with labor relations problems, as a labor union representative, or as a labor relations specialist for a company, where the work involved negotiating on employee grievances, bargaining agreements, or other labor relations matter.

(2) Ability to take initiative and expedite matters toward a satisfactory resolution in critical situations, particularly where time pressures are overriding (such as in threatened or actual strikes).

(3) Ability to utilize investigative techniques in obtaining pertinent factual information and analyze the information and derive conclusions. This may be demonstrated through experience gained, for example, as a wage and hour investigator, or as a wage specialist.

(4) Familiarity with and ability to interpret applicable labor laws, decisions, etc. This may be demonstrated through experience gained, for example, in work in wage and hour law administration (e.g., work interpreting provisions of wage and hour laws) or wage and hour investigation.

(5) Acquaintance with industrial personnel management policies and practices. This may be demonstrated through experience gained, for example, as a representative of management or of labor when the work provided understanding of management personnel policies and practices.

(6) Capacity for appreciating the impact of actions in the industrial relations area on the procurement process and, similarly, the effect on industrial relations matters of changes in procurement policies and procedures.

For all positions at grade GS–12 and above, there must be a clear showing that at least 1 year of the specialized experience included a substantial amount of work involving responsible dealings with labor *and* management on industrial labor relations matters.

(*Note:* The specialized experience such as cited in paragraphs (1) through (6) above is not to be construed as *fully* qualifying *per se* if it does not give evidence of having fully provided the required skills and knowledges. For example, work as a wage and hour investigator would not normally provide the substantial labor relations knowledges required for the GS–12 grade level.)

In addition to the above required skills and knowledges, for all positions involving supervisory or administrative program responsibility, experience must show that applicants have ability to:

(7) Plan and develop program directives, guides and procedural requirements necessary to the operations of the compliance program;

(8) Conduct instructional or educational sessions on the compliance program requirements, for contractors and others concerned.

Examples of nonqualifying specialized experience

—Experience as a shop steward is ordinarily not qualifying. In some instances, however, a shop steward may actively participate in settling employee grievances, labor-management negotiations, or similar

matters. In such a case, the applicant's experience in this respect must show that his participation was active and substantial enough to warrant consideration as appropriate specialized experience.

—Experience as a specialist in equal employment opportunity programs may be qualifying as general but not as specialized experience, unless it provided substantial knowledge of pertinent labor laws or labor relations.

—Experience as a contract or procurement specialist may be qualifying as general but not as specialized experience, unless it provided the opportunity for gaining substantial knowledge of pertinent labor laws or labor relations.

QUALITY AND TYPE OF EXPERIENCE

The required amount of experience will not in itself be accepted as proof of qualification. The quality, type and scope of experience must be of such a nature as to demonstrate that applicants are fully qualified to perform the duties at the levels for which they apply. For positions in GS–11 and below, at least 6 months of the required specialized experience must have been at a level of difficulty and responsibility comparable to that of the next lower grade, or 1 year of such experience at a level comparable to that of the second lower grade in the Federal service. For positions in GS–12 and above, at least 1 year of such experience must have been at a level of difficulty and responsibility comparable to that of the next lower grade in the Federal service.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. Undergraduate education. — Education successfully completed in an accredited college or university which included an average of 6 semester hours (or its equivalent) per year in business administration, industrial management, accounting, economics, industrial relations, labor relations, labor law, or other closely related, suitable field, may be substituted for general experience at the rate of 1 full academic year of study for 9 months of experience, up to a maximum of 4 years of study for 3 years of general experience.

2. Full-time* graduate education may be substituted for specialized experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For 1 year of specialized experience.*—One full academic year of graduate education in subjects directly related to industrial labor relations, such as labor relations, labor problems, labor economics, labor law.

b. *For 2 years of specialized experience.*—

(1) Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education, with major course of study in subjects directly related to industrial labor relations such as the fields described in paragraph a above; *or*

(2) Completion of a total of at least 6 years of pre-legal and legal education which meets all the requirements for an LL.B. or J.D. degree (or higher degree in labor law). (This amount and kind of education meets all the requirements for grade GS–9.)

BASIS OF RATING

A written test is not required for positions at grade GS–9 and above. Applicants will be rated on the nature and quality of their experi-

*Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.

ence, training and qualifications, to determine the extent to which they possess the knowledges and abilities necessary for successful performance. The information for rating experience and training will be taken from the application form and from any additional information obtained through confidential inquiries to supervisors and others familiar with the applicant's work.

INTERVIEW

Applicants who qualify in the training and experience requirements may be required to appear for an interview. The purpose of the interview is to observe and evaluate the personal qualities essential to the performance of the duties of the position.

SELECTIVE PLACEMENT

Some positions in this series require experience or training that provided a specific kind of background (e.g., industrial relations knowledge relating to a particular industry). Selective placement may be used to fill those positions which require such special experience or training.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

EQUAL EMPLOYMENT OPPORTUNITY SERIES **GS-260**
(p. 1)

Equal Employment Specialist, GS-5/15
Equal Employment Manager, GS-11/15
Supervisory Equal Employment Specialist, GS-11/15

DESCRIPTION OF WORK

This series includes positions developing, administering, evaluating, or advising on the Federal Government's internal equal employment opportunity program within various Federal agencies when the position requires knowledge of Federal equal employment opportunity (EEO) regulations and principles; compliance and enforcement skills; administrative, management, and consulting skills; and a general knowledge of Federal personnel administration. This includes managers or coordinators of special emphasis programs designed to solve the specialized employment problems of women, Hispanic people, veterans, the handicapped, workers over age forty, and others as they relate to Federal employment.

For further information about the nature of the work performed by employees in the Equal Employment Opportunity Series, see the position classification standard. The criteria in the classification standard, and in particular, the benchmark descriptions, should be helpful in evaluating the level of experience a candidate has gained outside of the Federal Government, or in any other position outside of the General Schedule.

HOW TO USE THIS STANDARD

STEP ONE: Analyze the position to be filled. Determine the major duties and responsibilities of the position, prepare a complete and accurate position description in Factor Evaluation System (FES) format, and classify the position.

STEP TWO: Identify the job-related knowledges, skills, and abilities required by the position to be filled. Only those elements required by the position to be filled will be used for evaluating candidates. Properly classified positions require the knowledges and skills described in this standard for the appropriate grade level. Additional selective factors and quality ranking factors may be needed. (See *SELECTIVE PLACEMENT* below.)

STEP THREE: Determine the extent to which each applicant possesses the required knowledges, skills, and abilities. The process of identifying and evaluating evidence of applicants' possession of required knowledges and skills requires the rater to be knowledgeable about the position and to use sound judgment in evaluating the evidence of required qualifications. It also requires skill in identifying evidence from various sources. The following sources are generally acceptable:

(1) job application;
(2) supplemental application form;
(3) employment vouchers from former supervisors, teachers, and others; and
(4) interview reports.

Optional checklists are provided in Appendix A and Appendix B to assist you with the job analysis.

CAREER MOBILITY

One year of successful work experience in positions in the Civil Rights Analysis Series, GS-160, or the Equal Opportunity Compliance Series, GS-360, is considered to be sufficient evidence of the possession of the required minimum knowledges and skills for positions at the next higher level in this series except for specialized knowledge required by selective factors.

WRITTEN TESTS

None.

MINIMUM EXPERIENCE REQUIREMENTS

Minimum time requirements have been established in this standard. For example, except for authorized educational substitutions, a minimum of three years acceptable experience is required for GS-5. Also, a minimum of one year of experience of the appropriate quality level and kind is required for positions at GS-7 and above. This minimum experience requirement ensures that each applicant will have a period of time to both develop *and* demonstrate the required knowledges and skills. This requirement gives the employing agency minimum assurance that the applicant can do the work of the position. It also provides each applicant

with an equal minimum amount of time to demonstrate possession of the required knowledges and skills.

In general for positions above GS–5, the *minimum length* of relevant experience required is only *one year* *. However, the kind and level of this experience must have demonstrated possession of the required kinds and qualities of knowledges and skills.

Applicants are considered to possess minimum qualification if they have the following levels and amount of satisfactory work performance *in the same line of work:*

—For grades GS–7 through GS–11**, one year of experience comparable to the second lower grade in the Federal Service (e.g. one year in the GS–9/10 range is required for GS–11).

—For grades GS–12 and above, at least one year of experience at a level of difficulty comparable to that of the next lower grade in the Federal Service.

In determining if applicants possess the required knowledges and skills for a particular grade level, consider *all* paid and unpaid experience, education, and training whether or not it occurred during the minimum one year of experience. Knowledge and skills demonstrated throughout an applicant's work and education history should be considered to determine if they are of the appropriate kind and level.

*Requirements for GS–5****

Applicants must meet the requirements of A, B, or C below:

A. Three years of experience (including one year equivalent to GS–4) in administrative, investigative, technical, or other responsible work that demonstrated possession of the skills required to learn and progress in work typical of this series.

OR

B. Successful completion of a full 4-year course in an accredited college or university leading to a bachelor's degree in any field (this level of education is acceptable evidence of possession of all of the skills required for GS–5).

OR

C. Any time equivalent combination of experience and education defined in A and B above. In combining education with experience, an academic year of study is considered equivalent to 9 months experience.

The total creditable experience and/or education described in A or C above *must* have demonstrated possession of the following:

1. *Skill in writing.* This includes skill in writing factual reports (including analyses and conclusions) that are clear, concisely stated, logically organized, and understandable by the audience for which they are intended.

   This skill may be demonstrated by:

   a. work experience that involved writing investigative reports or other kinds of reports which present facts, analyses of facts, and conclusions;
   b. work experience writing straight news, features, or editorials for a newspaper or other publication;
   c. completion of a "senior paper" equivalent to a Junior or Senior level college course; or
   d. other equivalent demonstration of writing skill.

2. *Skill in oral expression.* This includes the skill to express oneself clearly, concisely, and logically in one-to-one interviews, group meetings, and oral presentations before groups.

   This skill may be demonstrated by:

   a. work experience in which interviewing, or other forms of oral expression are critical to successful performance such as classroom teaching, social work, counseling, some secretarial work typical of

* However, *two years* of technical assistance work experience at GS–5 or above is required for GS–7. (See Requirements for GS–7, below.)

**In the event any positions are filled at GS–6, one year of experience at the GS–5 or equivalent level is required.

***Applicants who meet the requirements of GS–7 also qualify for GS–5 or GS–6.

the GS-318 series, some police work typical of the GS-083 series, or investigative work typical of the GS-1810 or GS-1811 series in the General Schedule;

b. several college level courses in such areas as speech, public speaking, etc.;

c. performance in a structured employment interview designed to measure this skill; or

d. other equivalent demonstration of skill in oral presentation.

3. *Skill in investigating and analysing problems.* This includes skill in determining sources of information, gathering the information through systematic review of general and specialized references, and from individuals through interviewing, assembling, interpreting, and evaluating a large number of facts to define a problem, identify root causes, and arrive at a solution.

This skill may be demonstrated by:

a. work experience requiring this skill such as newspaper reporting, substantive investigative work, or research assistance work;

b. work in a wide variety of fields which involved the application of problem analysis techniques (e.g., describing a problem, identifying possible causes of the problem, collecting evidence, testing the possible causes, deciding on the most likely cause, and prescribing a solution to fit the problem). Skill in problem analysis may be directed to problems related to people, things, or data. Therefore, this skill may have been demonstrated in jobs as varied as social work support, instructor, instructional assistance, engineering technician, product inspection, statistical assistance, or other kinds of problem solving work;

c. successful completion of several college level courses, or independent study at an equivalent level, that involved the preparation of research papers for which extensive gathering and analysis of data was required (e.g., library research or interviewing for information); or

d. other equivalent demonstration of this skill.

4. *Skill to read, understand, interpret, and explain technical material such as written regulations, laws, or court decisions.* This includes the ability to interpret the specialized language of laws and regulations in the context they were written, to quickly gain an understanding of their meaning, to apply them to a variety of specific factual situations, and to be able to clearly explain their meaning to persons unfamiliar with the particular body of laws or regulations.

This skill may be demonstrated by:

a. legal clerical or legal secretarial work that involved explaining the contents of legal documents to the general public. (Typing legal documents does not meet this requirement);

b. substantive clerical or technical assistance work in insurance, banking, Federal personnel administration, military personnel administration, Federal income tax, employment assistance, welfare or public assistance, or similar work that involved reading and understanding technical or substantive regulations, or repair or operating manuals well enough to apply them to a variety of factual situations, or to explain them to the general public;

c. technician or research support work in engineering, the physical sciences, or social sciences that required reading and understanding complex technical material;

d. one or more college level courses in areas such as constitutional law, business law, administrative law, or similar courses; or

e. other equivalent demonstration of this skill.

5. *Skill in meeting and working effectively with persons regardless of their socioeconomic backgrounds.* This includes skill in dealing and communicating with men and women of various racial and ethnic backgrounds and socioeconomic strata of society. This element measures potential skill in dealing effectively with a variety of persons such as university presidents, corporation managers, politicians, lawyers, factory workers, students, teachers, unemployed or disadvantaged persons, or representatives of community or civil rights organizations.

   This skill may be demonstrated by paid or volunteer work experience or educational experiences that involved working contacts with men and women of different races, ethnic origins, and persons who hold both high and low positions, in organizational or institutional hierarchies. Many kinds of public contact work may demonstrate this skill from working as a receptionist to serving as a recreational assistant.

Requirements for GS–7.

Applicants must meet the requirements of A, B, C, or D below:

A. One year of satisfactory performance at the GS–5 or equivalent trainee position in any line of work that leads to the performance of analytical, interpretative, and judgmental work (e.g., two-grade interval work in the General Schedule).

B. Two years of experience doing technical assistance work (one-grade interval work in the General Schedule, or equivalent) that is:

   (1) *closely related* to the position to be filled such as work typical of the Equal Opportunity Assistance Series, GS–361 (see the position classification standard for that series); and

   (2) equivalent in level of difficulty to GS–5 or above in the General Schedule.

OR

C. Superior Academic Achievement as defined in Part II, Section III of this Handbook.

OR

D. One full academic year of graduate study in any field or one academic year leading to a *Bachelor of Law* or *Doctor Juris* degree.

The total creditable experience or education described in A, B, C, or D above must have demonstrated possession of all of the skills required for GS–5 (above). However, possession of higher levels of these skills will have been more clearly demonstrated by concrete work accomplishments, post-graduate education achievement or unusual scholarship.

Requirements for GS–9.

Applicants must meet the requirements of A or B below:

A. One year of experience involving work of an analytical nature in a GS–7 or equivalent position in equal opportunity or a related field such as personnel management, management analysis, or other field related to the position to be filled.

OR

B. Two full academic years of graduate study, or completion of all requirements for master's degree, or equivalent degree in an academic field or fields directly related to the position being filled, or completion of two academic years leading to a *Bachelor of Law* or *Doctor Juris* degree. (*See Graduate Education.*)

The creditable experience or education described above *must* have demonstrated possession of the following:

1. *Developed skill in writing.* This includes skill in organizing, writing, and proofing written material in a variety of formats including narrative reports, memoranda, and letters for a variety of audiences; skill in organizing principles, concepts, and facts in a logical manner appropriate to the subject and the intended audience; and

skill in presenting the material clearly, accurately, and concisely.

This skill may be demonstrated by:

a. experience in a position which required regular assignments to write in a variety of formats for diverse audiences including investigations, research work, public information work, newspaper reporting, position classification, or any of a wide variety of similar positions in the General Schedule, or other equivalent positions outside the General Schedule;
b. a college undergraduate major or minor in English, journalism, or similar fields;
c. several graduate courses in English, journalism, or similar fields; or
d. other equivalent demonstrations of skill in writing.

2. *Developed skill in investigating and analyzing problems.* This includes skill in identifying the most appropriate sources of information; skill in obtaining information by referencing library sources, files, or other documents; skill in interviewing or questioning persons to obtain or clarify facts and opinions, to identify issues or problems, develop working hypotheses, select and use an appropriate analytical technique, identify and evaluate relevant facts to draw reasoned conclusions, and clearly present and defend findings in writing or orally.

This skill may be demonstrated by:

a. experience in a position which required this skill such as equal opportunity complaint investigating, management analysis, social science, physical science, position classification, computer systems analysis, or a wide variety of similar kinds of work;
b. undergraduate or graduate education in the social sciences, physical sciences, engineering, or other fields that demonstrated this skill; or
c. other equivalent experience or education that demonstrated this skill.

3. *Skill in making personal contacts.* This includes skill in dealing effectively with persons holding opposing positions on issues by clearly and persuasively presenting a position, listening to and understanding the other person's position, compromising and/or agreeing when it is appropriate, and standing fast and arguing persuasively when that course is appropriate.

This skill may be demonstrated by:

a. experience in any of a wide variety of positions that require face to face resolution of substantial differences such as labor contract negotiation (e.g., as a member of a union negotiating team), informal EEO complaint resolution (e.g., as an EEO counselor), or other demonstrations of this skill;
b. education which demonstrated this skill such as an undergraduate major or minor in speech, college debating experience, or several college courses in law or other fields that involved oral presentations and oral arguments by the student; or
c. other equivalent demonstration of negotiating skill.

4. *Knowledge of the principles, practices, laws, regulations, and methods of Federal EEO.* Knowledge of the objectives of Federal EEO and potential to rapidly acquire detailed knowledge of the law, regulations, policies, complaint processing procedures, and methods of developing affirmative action plans.

Applicants may demonstrate this potential by successful performance in certain management, administrative, or policy related positions such as positions in the Management Analysis, Program Analysis, Personnel Management, or Budget Analysis Series, or similar positions in the General Schedule, or equivalent positions outside the General Schedule. Such experience must have included regular, substantial involvement in EEO.

5. *Knowledge of personnel management policies and practices.* General knowledge of personnel management and potential to rapidly learn the broad principles of merit staffing, position classification, labor relations, grievances, and employee appeals.

   Applicants may demonstrate this potential by successful performance in a variety of supervisory, or staff positions that require knowledge of Federal personnel administration, or personnel administration in State and local government, or in the private sector, or by successful completion of a college level course in personnel administration or general management.

6. *Knowledge of the particular employment problems faced by women, minorities, veterans, the handicapped, workers over age forty, or other relevant classes of persons.* This includes a knowledge of the range of attitudes of managers and supervisors toward women and minorities, and specialized problems of certain classes of employees, e.g., employed women who are raising children. This also includes a general knowledge of the availability in the labor market of women, minorities, veterans, the handicapped, or others, with various types of skills.

   This knowledge may be gained through supervisory experience, recruiting experience, employment counseling experience, specialized training, or other work or academic experience that involved consideration and solution of the special problems faced by women and other classes as employees and seekers of employment.

Requirements for GS–11.

Applicants must have at least one year of experience performing work of an analytical, interpretative, and judgmental nature. For GS–11 level positions, one year of experience must have been at the GS–9 or equivalent level. This experience must have demonstrated possession of the following:

1. *Knowledge of the principles, practices, laws, regulations, and methods of Federal EEO.* This includes knowledge of the complaints processing procedures, employee and management rights and responsibilities, and requirements for developing affirmative action plans.

   Applicants may demonstrate this level of knowledge through experience performing equal employment opportunity work in the public or private sectors, or through closely related experience in positions such as management analysis, financial management, training, labor relations, employment, position classification, or by performing technical EEO work in labor unions, or civil rights organizations.

2. *Knowledge of personnel policies and practices.* Knowledge of personnel systems including an understanding of the major principles and concepts of merit staffing, position classification, labor relations, and appeals and grievances. At this level, this includes knowing when to obtain expert assistance on technical personnel related problems, and how to obtain the correct information.

   Applicants may demonstrate possession of this knowledge through successful performance of EEO work requiring this knowledge, or work in one or more personnel specializations that demonstrated broad knowledge of personnel management, or experience in a supervisory, managerial, management analyst, or similar position that demonstrated this knowledge. Applicants may have gained this knowledge through experience in either the private or public sector.

3. *Skill in analyzing organizational policies and practices to identify barriers to EEO and to propose solutions to EEO problems.* Skill in analyzing agency practices and policies in personnel management and other areas that affect EEO, e.g., skill in

identifying underrepresented classes of employees in specific career ladders, identifying the causes of underrepresentation, and developing and proposing strategies for solving the problem.

Applicants may demonstrate this skill through experience conducting problem oriented organization or management analysis studies, by developing detailed EEO affirmative action plans, or by similar work.

4. *Knowledge of the particular employment problems faced by women and minorities, veterans, the handicapped, workers over age forty, or other relevant classes of persons.* This includes a knowledge of the range of attitudes of managers and supervisors toward women and minorities, and specialized problems of certain classes of employees, e.g., employed women who are raising children. This also includes a general knowledge of the availability in the labor market of women, minorities, veterans, the handicapped, etc., with various types of skills.

   This knowledge may be gained through equal opportunity experience, supervisory experience, recruiting experience, employment counseling experience, specialized training, or other work or academic experience that involved consideration and solution of the special problems faced by women and other classes as employees and seekers of employment.

5. *Skill in program management* (required for positions that include program management responsibility). Skill in managing a project or program, setting priorities, coordinating the efforts of other workers from different organizations, defining objectives based on available resources, setting priorities and evaluating progress toward objectives.

   This skill may be demonstrated by experience performing technical, administrative, or professional work that involved planning, coordinating, and evaluating work performed by other workers. Experience may be gained as a supervisor, team leader or as an individual worker whose assignments require the assistance of other workers.

Requirements for GS-12 and above.

Applicants must have at least one year of experience performing work of an analytical, interpretative, and judgmental nature at the next lower grade in the General Schedule (or equivalent) that demonstrated possession of the following:

1. *Knowledge of the principles, practices, law, regulations, and methods of EEO.* Broad and detailed knowledge of equal employment opportunity principles, practices, policies, and methods sufficient to develop programs and policies, evaluate EEO effectiveness of agency programs, provide on-the-spot advice, and integrate EEO program objectives of the employing organization.

   This knowledge may be demonstrated by substantial experience and achievements in the field of EEO. Substantial achievements and experience in the field of EEO may include successfully managing an EEO program for an organization, developing, approving, and monitoring detailed affirmative action plans for organizations, developing broad EEO policies and regulations, regularly evaluating the effectiveness of EEO programs, making technical recommendations for findings in complex EEO complaint cases, or similar experience that demonstrates that the applicant can apply a broad knowledge of EEO concepts, principles, regulations, and procedures to solve difficult problems and to make significant technical decisions.

2. *Knowledge of personnel policies and practices.* Knowledge of personnel systems including merit principles, recruitment, selection, job evaluation, pay, benefits, labor relations, grievance procedures, and appeals processes. At this level, applicants

should understand the basic principles of personnel systems, their implications for equal employment opportunity, and ways of finding detailed information on particular issues (e.g., by referencing the Federal Personnel Manual, laws, or regulations). Applicants should be able to identify and analyze the underlying personnel administration issues of individual or systemic EEO problems.

Applicants may demonstrate possession of this knowledge through successful performance of EEO work requiring this knowledge or technical work in personnel administration. Applicants may have gained this knowledge through experience in either the private or public sector.

3. *Skill in analyzing organizational policies and practices to identify barriers to EEO and to propose solutions to EEO problems.* Skill in analyzing agency practices and policies in personnel management and other areas that affect EEO, e.g., skill in identifying underrepresented classes of employees in specific career ladders, identifying the causes of underrepresentation, and developing and proposing strategies for solving the problem.

Applicants may demonstrate this skill through experience conducting problem oriented organizational or management analysis studies, by developing detailed EEO affirmative action plans, or by similar work.

4. *Knowledge of the particular employment problems faced by women and minorities, the handicapped, veterans, workers over age forty, or other relevant classes of persons.* This includes a knowledge of the range of attitudes of managers and supervisors toward women and minorities, and specialized problems of certain classes of employees, e.g., employed women who are raising children. This also includes a general knowledge of the availability in the labor market of women and minorities with various types of skills.

This knowledge may be gained through supervisory experience, recruiting experience, employment counseling experience, specialized training or other work or academic experience that involved consideration and solution of the special problems faced by women and other relevant classes as employees and seekers of employment.

5. *Program management skills* (required for positions that include program management responsibility). Skill in developing, planning, directing, and evaluating broad equal employment opportunity programs covering many varied subordinate organizations with multiple layers, and, *typically*, skilled in meeting program objectives by coordinating resources controlled by other managers.

This skill may be demonstrated by experience that involved coordinating, leading, or directing other workers performing technical, administrative, or professional work; establishing program objectives or goals and assessing progress toward their achievement; adjusting schedules and activities to meet unanticipated requirements; integrating work products of several offices or organizations; assessing advantages and disadvantages of various courses of actions; and making decisions.

GRADUATE EDUCATION

Graduate education is considered directly related to the position being filled *only* if it demonstrated possession of the knowledges and skills needed for successful performance of the essential work of the position. However, the graduate study may be supplemented by other education, training, or experience which as a whole demonstrates ability to do the essential work of the position. A degree in one apparently related field may not provide knowledges and skills critical to success on the job. For example, graduate study in a women's studies program appears directly related to positions of Federal women's program managers. However, Federal women's program manager positions

require knowledge and skill to analyze employment policies and practices in Federal agencies. Therefore, a degree in women's studies must have either included or been supplemented by education or experience that demonstrated knowledge of management and/or employment practices.

The following are *examples* of graduate fields that may satisfy the requirements for positions at GS–7 or GS–9.

Type of Position	*Graduate Study Field*
Equal Employment Specialist concerned specifically with women's employment issues.	Business or Public Administration, Law, Personnel, Labor or Industrial Relations; *OR* Women's Studies supplemented by experience or education in Personnel, Labor or Industrial Relations, or Business or Public Administration.
Equal Employment Manager concerned with management of total affirmative action programs.	Business or Public Administration, Personnel or Industrial Relations, Law, or other fields that included substantial course material relating to employment, management, civil rights, labor markets, or similar areas.

SELECTIVE PLACEMENT

Some positions require subject-matter knowledge of a specialized nature, or specialized skills not described in this standard. Job related selective factors may be constructed in these cases. Spanish speaking skill is an example of a selective factor that may be used for positions in this series at any grade level where appropriate.

A specialized knowledge of the equal employment opportunity problems of a class or category of persons is another example of a selective factor that may be required when appropriate.

This knowledge may be demonstrated by a substantial period (e.g., 6 months or more) of paid or unpaid experience, or directly related graduate or undergraduate college education that shows that the applicant possesses detailed knowledge of the barriers to equal employment opportunity faced by specific classes or categories of persons, e.g., women, veterans, workers over age forty, handicapped persons, Hispanic people, American Indians, etc. For example, an applicant for a position of equal employment specialist GS–260–12, concerned with barriers to equal employment of Hispanic workers, may be required to possess paid or unpaid experience or education that clearly shows that the applicant understands the equal employment opportunity problems faced by Hispanic people in the United States and is familiar with their organized efforts to overcome them.

PHYSICAL REQUIREMENTS—ALL LEVELS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

SUPERVISORY POSITIONS

Use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X-118 in conjunction with this standard.

BASIS OF RATING

All candidates will be rated on a scale of 100. The basis of rating will be an evaluation of the candidate's experience, education, and training in relation to the duties of the position to be filled. Work experience and relevant course work above the minimum required for a particular position at a particular grade level will be considered in ranking qualified applicants based on the relatedness of the work experience or courses to the position's required knowledges and skills. Rating will be based on statements in the application form, any supplemental information forms, and any additional evidence received by the examining office. A written test is not required.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For positions requiring operation of a motor vehicle, applicants must either hold, or obtain within 30 days of employment, appropriate State and U.S. Government motor vehicle operator's permits.

Appendix A

Optional Position Element Profile

Equal Employment Opportunity Series

Organization:

Title, series, grade: PD #

Element (KSA): *	Required (X)	Ranking Factor (X)	PD Reference
Basic requirements			
1. skill in writing			
2. skill in oral expression			
3. skill in investigating and analyzing problems			
4. skill in reading and interpreting technical material			
5. skill in working with persons of various socioeconomic backgrounds			
Other requirements:			
Element *Grade Level*			
1.			
2.			
3.			
4.			
5.			
Selective factors:			
1.			
2.			
3			
Specialized knowledge requirement:			

*KSA means knowledge, skill, or ability.

Appendix B

Optional Applicant Appraisal Form

Date: Applicant Name:

Position to be filled:

Organization:

Title, series and grade:

Required KSAs	Required Factor (X)	Ranking Factor (X)	Level (A, B, C, D, or E)	Comments
Basic elements:				
1. skill in writing				
2. skill in oral expression				
3. skill in investigating and analyzing problems				
4. skill in reading and interpreting technical material				
5. skill in working with persons of various socioeconomic backgrounds				
Additional elements:				
1.				
2.				
3.				
4.				
5.				
Selective factors:				
1.				
2.				
3.				
Specialized knowledge requirement:				

Required and Ranking factors:

Check the appropriate column to indicate if each KSA is required or is being used to rank applicants, or is both a required and ranking factor. Most KSA's listed on Appendix B will be required KSAs. Some will be both required and ranking factors. Occasionally a KSA may be used only to rank applicants.

Level Codes for each knowledge or skill:

A.—Little knowledge or skill in this area.

B.—Had study or training in this area.

C.—Used this knowledge or skill, but was closely supervised.

D.—Used this knowledge or skill on own, under normal supervision.

E.—High level of proficiency with respect to this knowledge or skill. Considered an expert in use of this knowledge or skill. Can use it to perform difficult or highly specialized tasks.

Clerk (various positions) GS-1/3

Positions covered by this standard:

A. Clerical positions, GS-1/3, in the following series for which the entrance level is usually GS-3 or below:

Personnel Clerical and Assistance Series	GS-203
Military Personnel Clerical and Technician Series	GS-204
Miscellaneous. Clerk and Assistant Series	GS-303
Information Receptionist Series	GS-304
Mail and File Series	GS-305
Correspondence Clerk Series	GS-309
Printing Clerical Series	GS-351
Coding Series	GS-357
Communications Clerical Series	GS-394
Financial Clerical and Assistance Series	GS-503
Cash Processing Series	GS-530
Voucher Examining Series	GS-540
Payroll Series	GS-544
Military Pay Series	GS-545
Budget Clerical and Assistance Series	GS-561
Time and Leave Series	GS-590
Medical Clerk Series	GS-679
Legal Instruments Examining Series	GS-963
Claims Clerical Series	GS-998
Editorial Assistance Series	GS-1087
Procurement Clerical Series	GS-1106
Property Disposal Clerk and Technician Series	GS-1107
Library Technician Series	GS-1411
Archives Technician Series	GS-1421
Statistical Assistant Series	GS-1531
Supply Clerical and Technician Series	GS-2005
Transportation. Clerk and Assistant Series	GS-2102
Shipment Clerical and Assistance Series	GS-2134

B. Clerical positions, GS-1/3, in the following series for which the entrance level is occasionally as low as GS-3:

(The GS-3 positions in these series are generally trainee in nature, although some may represent a more limited assignment than is typical of the occupation as a whole. While most recruiting for these occupations is done at grades GS-4 and above, this standard is considered appropriate for filling such few positions as exist at GS-3.)

Intelligence Aid and Clerk Series	GS-134
Accounting Technician Series	GS-525
Legal Clerk and Technician Series	GS-986
Freight Rate Series	GS-2131
Travel Series	GS-2132

C. Other similar types of positions in grades GS-1/3 for which no qualification standards exist.

Description of work

Clerical positions involve the orderly processing of the papers and performance of the routine work supporting an office or organization. Within a framework of procedures, regulations, precedents, and instructions, clerks process and maintain the records and written materials which represent the transactions or business of the office or organization served. Among the basic duties which may be performed are, for example: (1) maintaining records; (2) receiving, screening, reviewing, and verifying documents; (3) searching for and compiling information and data; (4) providing a central source of information on the activities of the organization orally or by correspondence; (5) preparing and/or verifying the validity of documents with which the organization is concerned; etc.

Requirements

A. *General background:*

In order to be considered for appointment and to enter on duty the applicant's overall background, work history, personal characteristics, work habits, and general behavior and reputation in his/her community, school, and previous employment must be of such nature as to provide positive evidence that he/she can and will perform clerical or office type work in a successful and productive manner in an office type of

environment. If the information in the application, or information which otherwise comes to the attention of the OPM, raises any reasonable doubt that the applicant can and will perform in this manner, he/she may be required to produce additional satisfactory evidence that he/she does possess the abilities and qualities which will assure competent performance.

Grade GS–1

For grade GS–1, no written test, experience, training, or education is required. Candidates must be interested in and willing to perform simple, routine, clerical work, and show evidence of likelihood of success on the job.

B. *Experience:*

GS–2.—Six months of general experience; or graduation from a full 4-year or senior high school or possession of a General Educational Development High School Equivalency Certificate (GED).

GS–3.—One year of general experience; or 1 academic year of business or secretarial school, junior college, or college which is in addition to graduation from high school.

Definition of terms used above

1. *General experience:* Progressively responsible clerical or office work of *any kind* in which the applicant has demonstrated the ability to perform satisfactorily at the grade level of the position.

2. *One year of business or secretarial school:* Thirty-six weeks of successfully completed full-time study is creditable as 1 academic year. "Full-time study" normally will involve 20 clock hours of classroom instruction per week.

Written tests

Applicants for positions at grades GS–2 and GS–3 are required to pass written tests.

For some positions, only applicants who receive suitably high scores on parts of the test specifically pertinent to the particular kind of work to be done will be considered.

For inservice placement action the written test is not required. If a test is used, it may not be used on a pass/fail basis. For information on when and how a test may be used in evaluating eligible employees, see FPM Supplement 335–1.

Basis of rating

For GS–1: An evaluation of the applicant's willingness to do simple and repetitive clerical work, dependability, and the ability to perform work safely.

For GS–2 and GS–3: The score on the written test *and* an evaluation of the extent and quality of experience, education, and training.

Applicable standards for clerical positions also requiring skill in typing or stenography

Some positions requiring typing or stenographic skill as high as that required under the competitive standard for typing or stenographic work, are so constituted that other work skills or abilities, rather than typing or stenographic skills, form the paramount qualification requirements for the positions. Positions so constituted are classified in the series appropriate for the *paramount* requirement and are identified by the parenthetical addition of the words "typing" or "stenography" to the titles otherwise prescribed for those series. In actions involving such positions, the qualification standards established for the series in which the positions are classified, rather than the clerk-typist or clerk-stenographer standards, are to be used. An appropriate means should be used to assure that applicants possess sufficient skill in typing or stenography to perform the duties of such positions (i.e., a performance test, certificate of proficiency, or some method of certification acceptable to the Office of Personnel Management).

Requirements for clerical positions involving public contacts

Some clerical positions (e.g., information receptionists) which involve substantial contact with others, require a clear speaking voice, tact, courtesy, and capacity for effective public contacts. In filling such positions competitively and noncompetitively, appointing officers should assure themselves by reference checks, personal interviews, or other appropriate means

that applicants possess these qualities to the degree necessary for satisfactory performance of the duties of such positions.

Physical requirements

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructing, provision of readers and interpreters, or adjusted work schedules.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

Clerk/Assistant, GS-4/6

This standard applies to all clerk and assistant positions, GS-4 through GS-6, in the GS-300 Group, except those for which specific standards exist.

Experience and training requirements

Applicants must have had general and specialized experience of the type described below, in the amounts indicated for each grade.

Grade	General experience (years)	Specialized experience (years)	Total (years)
GS-4	1	1	2
GS-5	1	2	3
GS-6	1	2½	3½

The pattern established by this table may be extended to apply to one grade interval positions above GS-6 covered by this standard. (See Part II, X-118, Instructions to Users, Section I.)

General experience is progressively responsible general office clerical experience which has demonstrated the ability to perform clerical duties satisfactorily at the grade level of the position.

Specialized experience is progressively responsible experience in the field in which the duties of the position are to be performed. Experience in related fields is acceptable as specialized experience for grade GS-4 positions, and for a maximum of 6 months of the required specialized experience for grades GS-5 and GS-6.

The term "related fields" as used in the definition of specialized experience is intended to apply to types of experience in the general area in which the duties of the position are to be performed.

Supervisory positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

Quality of experience: Applicants for positions at GS-4, 5, and 6 must show either 6 months of experience at a level of difficulty comparable to the next lower grade or 1 year at a level comparable to the second lower grade in the Federal service, of which at least 6 months have been specialized experience. The applicant's total experience must give evidence of the ability to perform the duties of the position at the grade for which an eligible rating is assigned.

Substitution

For a maximum of 3 years of the required experience (1 year of general plus 2 years of specialized experience) study successfully completed in a resident school or institution may be substituted as follows:

General experience only:

1. Study completed in a college, university, or junior college, above the high school level may be substituted on the basis of *one-half academic year* of study for *6 months* of experience.

2. Study completed in a business or secretarial school or other comparable institution above the high school level may be substituted on the basis of *one-half academic year* of study for *6 months* of experience provided such subjects as business English, office machines, filing and indexing, office practices, business mathematics, bookkeeping or accounting were studied. No credit will be allowed for training which has been obtained only or primarily in the basic skills of shorthand or typing or refresher courses.

3. Excess specialized experience may be substituted for general experience on a year-for-year basis.

Specialized experience:

1. For the first year of specialized experience, study successfully completed in a resident school above the high school level may be substituted at the rate of *one-half academic year* of study for *6 months* of specialized experience provided such study included a minimum of 6 semester hours, or the equivalent, per year in subjects closely related to the specialized field. Ex-

amples of such subjects for some of the specialized fields are:

Mail and File—Business Administration
Correspondence—English Composition, Journalism

2. For the second year of specialized experience, study of the quality described in paragraph 1 above may be substituted at the rate of *one academic year* of study for *6 months* of specialized experience. Therefore, a full 4-year course of this type of study may be substituted for a maximum of 3 years of the required experience (1 year of general plus 2 years of specialized experience) and is fully qualifying for grade GS–5.

3. No substitution may be made for the required supervisory experience or for 6 months of the specialized experience required for grade GS–6.

Note A

"School above the high school level" means an educational institution (e.g., a business or secretarial school or college, a junior college, or a college or university) for which high school graduation or the equivalent is prerequisite.

"Full-time study" in the case of business or secretarial schools is the equivalent of at least 20 classroom hours of instruction per week plus necessary outside study. Part-time study is prorated on this basis also, but is creditable only in amounts equivalent to one-half academic year or multiples thereof.

"An academic year" consists of approximately 36 weeks of full-time study, or 30 semester hours, or the equivalent.

WRITTEN TEST

A written test is required for appointments from the competitive register and from outside the register at grade GS–4. For inservice placement action the written test is not required. If a test is used, it may not be used on a pass/fail basis. For information on when and how a test may be used in evaluating eligible employees, see FPM Supplement 335–1.

BASIS OF RATING

Candidates for GS–4 positions will be rated on the basis of their test scores. Candidates for positions at grades GS–5/6 will be rated on the basis of an evaluation of their experience and training.

GENERAL NOTE AS TO APPLICABLE STANDARDS FOR CLERICAL POSITIONS INVOLVING PUBLIC CONTACTS

Some clerical positions (e.g., information receptionists) which involve substantial contact with others, require a clear speaking voice, tact, courtesy, and capacity for effective public contacts. In filling such positions competitively and noncompetitively, appointing officers should assure themselves by reference checks, personal interviews, or other appropriate means that applicants possess these qualities to the degree necessary for satisfactory performance of the duties of such positions.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

GENERAL ADMINISTRATIVE, CLERICAL, AND OFFICE SERVICES GROUP

Office Machine Operator (various positions) GS–1/3

POSITIONS COVERED BY THIS STANDARD

A. Occupations requiring alphabetical keyboard proficiency as well as both significant clerical and machine skills:

Bookkeeping Machine Operator---- GS–354

B. Occupations which require significant clerical as well as machine skills:

Calculating Machine Operator----- GS–355
EAM Operator----------- GS–359

DESCRIPTION OF WORK

Persons employed in these positions have as their primary responsibility the operation of the specific office machine described in the individual job title, although clerical work of varying degrees is also involved in many such positions.

EDUCATION AND EXPERIENCE REQUIREMENTS

GS–1.—No experience or education required; however, the appropriate tests must be passed.

GS–2.—Must pass the appropriate written test and—

Alternative 1.—Pass appropriate performance test (if any);

or

Alternative 2. Have had six months of office clerical experience or office machine operation experience provided the experience has demonstrated the candidate's ability to operate the appropriate machine;

or

Alternative 3. Have completed a specialized course of instruction in the operation of the appropriate machine and either

a. had three months of general or specialized experience

or

b. graduated from high school.

The specialized course of instruction on appropriate machines may have been completed as part of the high school curriculum. Evidence of successful completion of such courses will be required. Acceptable evidence includes a passing grade on a report card or an appropriate certificate issued by the instructor or organization offering the course.

GS–3.—Must pass the written test *and* the appropriate performance test (if any) and have had either (a) one year of acceptable experience of which at least six months is specialized experience, or (b) one academic year of business or secretarial school or junior college. For occupations for which no performance test is available, education offered under (b) must have included training in the operation of appropriate office machines.

DEFINITIONS OF TERMS USED

General experience: Progressively responsible office machine operation, clerical, or other office experience in which the applicant demonstrated potential ability to work at the grade level of the position.

Specialized experience: Experience in the operation of the type of machine appropriate for the position for which application is made, with the following specific requirements for certain positions:

Calculating Machine Operator (Comptometer-Type) GS–355–3—Specialized experience must be on a comptometer-type of machine.

EAM Machine Operator GS–359–3.—At least three months of the experience must have been in setting up electric accounting machines for operation including the wiring of plug boards and control panels from prescribed wiring diagrams, the setting of various control devices on the machines, the conducting of tests using test decks and other procedures to determine proper functioning of machines, and, when applicable, accuracy of wiring.

One academic year of business school: Thirty-six weeks of successfully completed full-time study is creditable as one academic year. ("Full-time study" normally will involve 20 clock hours per week.)

Specialized course of instruction: A formalized educational program or course intended to

provide sufficient skill that the graduate can be considered to be a competent operator. The duration of the courses varies widely depending to a large degree on the prerequisites for entering the training, e.g., a typist can be taught card punching in 30 hours; it may take many times as long to teach a nontypist to operate a bookkeeping, card punch, or other alphabetic keyboard equipped machine.

WRITTEN TESTS

All applicants are required to pass tests covering (a) verbal abilities and clerical abilities (alphabetizing and arithmetic) and (b) eye-hand coordination and perception of differences. All applicants for positions of operators of machines equipped with an alphabetic keyboard will be required to pass a performance test on a typewriter-style keyboard. Applicants for positions of EAM Operator must pass a test of abstract reasoning ability.

Higher scores may be required for the higher grades.

The tests may be waived for all inservice placement actions (but not for appointments outside the register) *provided* there is other adequate evidence of the ability of the applicant to perform the work to be assigned in a successful manner and provided, for grades GS–1 and GS–2, the alternate standard which follows is met. (Adequate evidence may consist of such things as: supervisory evaluations; performance on previous jobs or assignments; production records.)

ALTERNATE STANDARD FOR GS–1 AND GS–2 WHEN THE TESTS ARE WAIVED

When the tests are waived in inservice placement actions, the following experience and education standards must be met:

GS–1.—Any one of the following:

a. Three months of specialized experience, or

b. Having completed a specialized course of instruction in the operation of the type of machine to be operated in the position to be filled, or

c. Any other educational background which is also acceptable at grade GS–2.

GS–2.—Any of the acceptable combinations of experience and/or education listed above under alternatives 2 and 3 for this grade level.

BASIS OF RATING

Applicants will be ranked on the basis of (*a*) their score on the verbal abilities test, and (*b*) the extent and quality of their experience and education. Other required tests must be passed but are not used to rank the eligibles.

GENERAL NOTE AS TO APPLICABLE STANDARDS FOR POSITIONS ALSO REQUIRING SKILL IN TYPING OR STENOGRAPHY

Some office machine operator positions may require typing or stenographic skill at or above the level of proficiency required under the competitive standard for entry-level clerk-typist or clerk-stenographer positions, but may be so constituted that the machine operator skills, rather than the typing or stenographic skills, form the paramount qualification requirements for the positions. Positions so constituted are classified in the office machine operator series appropriate for the paramount requirement and are identified by the parenthical addition of the words "typing" or "stenography" to the titles otherwise prescribed for those series. In actions involving such positions, the qualification standards established for the series in which the positions are classified, rather than the clerk-typist or clerk-stenographer standards, are to be used. An appropriate means should be used to assure that applicants possess sufficient skill in typing or stenography to perform the duties of such positions.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to safely and efficiently perform the essential functions of the position. Depending on the essential duties of a specific position, usable vision may be required. However, in most cases, a specific physical condition or impairment will

not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform. Reasonable accommodation may include, but is not limited to, job modification, provision of assistive devices, job restructuring, and/or provision of readers for blind persons.

GENERAL ADMINISTRATIVE, CLERICAL, AND OFFICE SERVICES GROUP

Communications Equipment Operator

This standard covers the following kinds of communications equipment operator positions at grades GS–3 and above:

Teletypist, GS–385
Cryptographic Equipment Operator, GS–388
Radio Operator, GS–389
Communications Relay Operator, GS–390
Communications Relay Operator (Computer), GS–390
Communications Operator (various titles), GS–392

DESCRIPTION OF WORK

Communications Equipment Operator positions involve the operation of one or more types of communications equipment of the kind identified by the title of the position and described briefly below. In addition, these positions require clerical abilities in performing related message handling work such as preparing messages in prescribed formats, assigning identifying and routing symbols, applying security or other special handling procedures, correcting garbled messages, maintaining records of messages processed, or similar duties.

Teletypists operate teletypewriter equipment in transmitting and receiving messages or in preparing perforated tape for automatic transmission.

Cryptographic Equipment Operators operate keyboard-type equipment for the mechanical or electronic encryption and decryption of classified communications. Positions at grades GS–4 and above require specific types of cryptographic operating experience, based on the requirements of the positions to be filled.

Radio Operators transmit and receive messages over radio circuits, networks or systems using international Morse code, voice, or radio teletype.

Communications Relay Operators operate semiautomatic or automatic relay equipment to receive, process, and retransmit messages to receiving stations or other relay points. Operators in the *Computer* specialization operate digital computer equipment which is programed to perform these functions.

Communications Operator (various titles) includes positions which require the operation of two or more kinds of communications equipment (e.g., teletypewriter and cryptographic equipment), or operation of communications equipment which is not covered in a separate occupation (e.g., data transceivers).

EXPERIENCE, EDUCATION, AND OTHER REQUIREMENTS

Except for the substitutions provided below, applicants must possess the kind and amount of experience shown in the table below and described in the paragraphs immediately following:

Grade	*General experience (years)*	*Specialized experience (years)*	*Total experience (years)*
GS–3	1	0	1
GS–4	1½	½	2
GS–5	1½	1½	3
GS–6	1½	2½	4
GS–7	1½	3½	5
GS–8 and above	1½	4½	6

General experience

General experience is one or a combination of:

(a) experience as a typist, alphabetic key punch operator, or other work which required skill in the operation of a typewriter-style keyboard; or

(b) any type of experience which provided a knowledge of communications operations and procedures (e.g., operator experience in any field of communications, other than telephone switchboard operation, or experience as a communications clerk or in other appropriate positions in the communications field); or

(c) other types of experience which provided knowledge of communications equipment operating work or which required skill in use of typewriter keyboards.

Specialized experience

Specialized experience is experience in operating one or more kinds of the type of communications equipment indicated by the title of the position. For positions at grades GS–5 and above, the specialized experience must demonstrate progressively greater knowledge of varied equipment operation and of related message handling functions, such as preparing complex messages, routing messages over complex networks or systems, applying various special handling procedures, correcting garbled or incomplete messages, or similar functions.

SPECIAL ADDITIONAL REQUIREMENTS FOR SOME POSITIONS

a. Supervisory positions

Candidates for supervisory positions in any of these communications equipment operating occupations must meet the requirements of the qualification standard for Supervisory Positions in General Schedule Occupations in part III of this handbook.

b. Cryptographic Equipment Operator positions

1. For positions at grade GS–4, the six months of specialized experience must be in the operation of the principal specific kind or kinds of equipment involved in the position (mechanical, electromechanical, electronic, off-line, on-line, or a combination of these).

2. For positions at grade GS–5, one year of the specialized experience must be in the operation of the principal specific kind or kinds of equipment involved.

3. For positions at grade GS–6, one year of the specialized experience must be experience which provided skill in the use of a variety of cryptographic devices and procedures.

4. For positions at grade GS–7, one year of the specialized experience must be experience which provided knowledge and skill in the use of a variety of cryptosystems and related communications procedures.

5. No substitution may be made for these specific experience requirements.

c. Radio Operator positions

Applicants may be required to demonstrate ability to send, receive, and transcribe international Morse code at a speed of at least 25 words a minute.

d. Communications Relay Operator (Computer) positions

1. For positions at grade GS–5, six months of the specialized experience must be experience which provided skill in operating a variety of peripheral devices associated with digital computers, or in the operation of electronic equipment having most of the characteristics of a digital computer.

2. For positions at grades GS–6 and above, one year of the specialized experience must be experience which provided skill in the operation of digital computers and associated equipments.

3. Data processing experience, not directly concerned with automated communications operations, is acceptable for this portion of the specialized experience but may not be substituted for the remainder of the specialized experience requirement.

e. Other operator positions

Certain other positions, particularly positions in the General Communications Series, GS–392, may require experience in the operation of specific kinds of communications equipment. In filling such positions, only those candidates who meet the specific experience requirements of the position to be filled will be considered.

QUALITY OF EXPERIENCE

The required amount of experience will not in itself be accepted as proof of qualification. The candidate's record of experience and training must demonstrate ability to perform the duties of the position. In addition,→ for GS–4 positions, at least six months of the required specialized experience must have been at a level of difficulty comparable to grade GS–3 in the Federal service. For GS–5 positions, at least one year of the required specialized experience must have been comparable to GS–4. At GS–6 and above, at least one year of the required spe-

cialized experience must have been comparable to the next lower grade, or two years of the required specialized experience must have been comparable to the second lower grade.←

SUBSTITUTION FOR EXPERIENCE

1. Successful completion of training courses in communications operations and message handling procedures may be substituted for *general* experience at the rate of one month's training for two months of experience.

2. Training courses of the nature described above which pertain specifically to the communications equipment operations involved in the position to be filled may be substituted for up to *a maximum of six months of specialized experience* on a month-for-month basis.

3. *For Cryptographic Equipment Operator positions only*, study in a resident school above the high school level which included an average of six semester hours per year, or the equivalent, in mathematics, statistics, or foreign language may be substituted for experience on the following basis:

(a) One academic year of study for one year of *general* experience;

(b) One academic year of study for six months of *specialized* experience. (NOTE: No substitution may be made for the specific experience requirements listed above under *Special Additional Requirements.*)

4. For *Radio Operator* positions, possession of a currently valid operator license may be substituted for experience on the following basis:

(a) An Amateur Radio Operator License of General Class or higher, may be substituted for one year of general experience.

(b) A Radiotelegraph Operator License, Third or Second Class, may be substituted for one and one-half years of general experience.

(c) A Radiotelegraph First Class Operator License, including the required one year of experience for its issuance, may be substituted for one and one-half years of general experience and six months of specialized experience, thus meeting all experience requirements for grade GS-4.

5. *For positions of Communications Relay Operator (Computer)*, training courses which are acceptable under the provisions of the qualification standard for Computer Operator, GS-332, may be substituted for general experience at the rate of one month's training for two months of experience. (NOTE: This provision is also applicable to positions in the General Communications Series, GS-392, which involve the operation of a digital computer, or equipment having most of the characteristics of a digital computer, to control automated data transmission operations.)

WRITTEN TESTS

For positions at grades GS-3 and GS-4, applicants will be required to pass a written test of clerical and verbal abilities, and for positions requiring a significant skill in alphabetic keyboard operations, to pass a performance test or provide a certificate of proficiency in operating keyboard equipment. No written test is required for positions at grades GS-5 and above.

The written test should be waived for in-service placement actions but may not be waived for appointments outside the register. The performance test should also be waived for inservice placement actions if candidates have had experience which included alphabetic keyboard operation or otherwise demonstrate the required proficiency.

BASIS OF RATING

All candidates will be rated on a scale of 100. Rankings will be made:

1. For competitive appointments at grades GS-3 and GS-4, on the basis of the test results.

2. For competitive appointments at grades GS-5 and above, and for inservice placement actions, on the basis of the quality and extent of pertinent experience and training.

PHYSICAL REQUIREMENTS

See Part II, Physical Requirements, paragraph 5. In addition, applicants must possess emotional and mental stability.

GUIDES FOR EVALUATING CANDIDATES FOR INSERVICE PLACEMENT

Much of the information needed to evaluate candidates for inservice placement actions will already be available in personnel files. If the available information on the candidate's experience and training does not provide enough detailed information to make the determinations listed below, the candidate should be requested to provide the needed information in a supplementary application form.

Present and former supervisors should be requested to provide appraisals of the candidate's experience, competence, and potential for advancement. It is suggested that the appraisal requests include the elements listed below, modified as appropriate to reflect the specific requirements of the position to be filled.

The evaluation of specialized experience should reflect:

(a) Whether the candidate has experience which demonstrated proficiency in operating the full variety of specific types of equipment involved in the position, operating one or more of the principal equipments involved, or operating one or more related types of equipment having similar operating characteristics;

(b) Whether this experience involved processing the more complex communications such as multiple address messages with complex letter/figure groups, codes, foreign language or similar material. (NOTE: The appropriate position classification standards provide detailed information for evaluating the complexity of the messages processed.)

(c) Whether the work required knowledge of the processing and special handling instructions for a variety of different categories of messages;

(d) Whether all communications were processed under one body of procedures, or required application of separate procedures of different agencies, networks or systems;

(e) Whether the work involved direct point-to-point transmission or refiling of messages without responsibility for the further routing or required routing of messages through one or more relay stations in a regional or national network, or routing through a combination of networks and systems for a major geographic area or worldwide;

(f) The extent of responsibility for such functions as (1) interpreting and reconstructing garbled messages, (2) determining the cause of defective messages (e.g., operator errors, transmission problems, equipment malfunctions) and initiating corrective action, (3) initiating and responding to service messages, (4) reviewing the work of other operators and advising them on problems or correction of errors, or similar work.

(g) The extent to which the candidate has demonstrated speed and accuracy in the work, dependability, and willingness and ability to work under pressure. (NOTE: Normally, production and quality control type records are available and should be used to support the appraisal of speed and accuracy in the work.)

As a general guide for evaluating the quality level of experience, other things being equal, greater credit should be given for:

- Recent experience;
- Experience which is most directly related to the work of the position to be filled in terms of the functions performed, specific equipment(s) involved, types of messages processed and related message handling procedures applied;
- Experience involving a greater variety of equipments, messages, routings and procedures;
- Experience which included responsible administrative and service functions, such as in (f) above, in addition to operating functions.

GENERAL CLERICAL AND ADMINISTRATIVE SERIES

GS–301

(Cancels and supersedes Miscellaneous Administrative and Management Positions GS–7/15, issued May 1977 (TS–162)).

EXPLANATORY NOTE

See the Multi-Group Standard for Administrative Positions covering Various Administrative, Program, and Management Positions, GS–5/15, which is filed in Part III of Handbook X–118 immediately following Subject-Matter Positions Involving Equal Employment Opportunity Assignments.

The Multi-Group Standard for Administrative Positions, GS–5/15, supersedes the standard for the General Clerical and Administrative Series, GS–301, covering Miscellaneous Administrative and Management Positions, GS–7/15. The Multi-Group Standard is to be used for positions formerly covered by the GS–301 standard.

WORK UNIT SUPERVISING SERIES

Work Unit Supervisor, GS–5/11

DESCRIPTION OF WORK

Incumbents of positions in this series are supervisors of one or more work units composed of employees performing work classified in one-grade interval series. These positions are involved in planning, scheduling, monitoring, and reviewing the work and work processes of the unit(s) with responsibility for the quality and quantity of the work accomplished, and in the performance of the normal range of responsibilities in personnel administration for the employees supervised.

The paramount requirement for positions in this series is the possession of the knowledges and abilities necessary to perform supervisory work. Although supervisors in this series may possess specialized skills or subject-matter knowledges required of the subordinate employees, prior experience in the work supervised or possession of a particular competitive level skill is not a requirement for these positions. For example, subordinate employees may use a particular skill with a minimum competitive level requirement such as typing, stenography, or data transcription which the supervisor need not have to supervise the work. Similarly, when the work processes are uncomplicated, straightforward, and repetitive, and can be readily learned, the supervisor need not have prior directly related experience (e.g., machine operation functions, routine laboratory support work, or routine clerical work).

Note: The following supervisory positions are not covered by this standard. Rather, these positions are covered by the standard for the appropriate specialized or general series in conjunction with the Qualification Standard for Supervisors in General Schedule Occupations in Part III of this handbook.

1. Supervisory positions which require the incumbent to possess the specialized knowledges and skills of the subordinate positions and which require prior experience in the work supervised.

2. Positions which involve, in addition to supervision of a work unit, the performance of nonsupervisory duties which require the specialized knowledges and skills of another series.

EVALUATION OF CANDIDATES

Candidates for positions in this series are to be evaluated by the Qualification Standard for Supervisors in General Schedule Occupations in Part III of this handbook in conjunction with this standard.

EXPERIENCE, EDUCATION, AND TRAINING REQUIREMENTS

To be qualified for positions in this series a candidate must have had at least one year of experience equivalent to the next lower grade level in work in which he/she has demonstrated the possession of the knowledges and skills necessary for successful performance of supervisory duties and responsibilities. These knowledges and skills are evidenced by assignments in which the candidate has:

1. Motivated, trained, and worked effectively with subordinate employees,
2. Planned, and carried out work effectively,
3. Accomplished the quality and quantity of of work expected within set limits of cost and time,
4. Communicated effectively both orally and in writing,
5. Responded to and furthered management goals, or
6. Developed improvements in or designed new work methods and procedures.

Candidates' experience and training must have demonstrated skill in readily learning the various work processes, procedures, and practices of their specific assignments.

Experience which has demonstrated the candidate's possession of the above knowledges and skills may have been gained through a variety of assignments such as work leader, senior clerk or technician, through performance of special assignments, or through working successfully with significant responsibility and independence.

SUBSTITUTION

No substitution of education may be made for the required one year of experience.

WRITTEN TEST

No written test is required for positions in this series.

BASIS OF RATING

Candidates for positions in this series will be rated on the basis of an evaluation of their experience and training.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers or interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Secretary Series, GS–318
Secretary GS–318, All Grades
Secretary (Stenography), GS–318 All Grades
Secretary (Typing), GS–318 All Grades

DESCRIPTION OF WORK

This series includes all positions the duties of which are to assist one individual, and in some cases the subordinate staff of that individual, by performing general office work auxiliary to the work of the organization. To be included in this series, a position must be the principal clerical or administrative support position in the office, operating independently of any other such position in the office. The duties require a knowledge of clerical and administrative procedures and requirements; various office skills; and the ability to apply such skills in a way that increases the effectiveness of others. The duties do not require a technical or professional knowledge of a specialized subject-matter area.

For more information on the work of this occupation, see the Position Classification Standard for the Secretary Series, GS–318, dated January 1979.

EXPERIENCE REQUIREMENTS

The requirements at all levels discussed below are purposely stated in terms of knowledges, skills, and abilities, rather than specific duties. A candidate may demonstrate possession of these knowledges, skills, and abilities through various means. For example, a candidate with extensive writing experience could perhaps demonstrate the ability to compose nontechnical correspondence without ever having performed that specific duty. Note also that a candidate need not have acquired the necessary knowledges, skills, and abilities in the same office in which the vacancy is located. Volunteer work for organizations such as civic groups or church groups may be used to fulfill experience requirements to the degree that such work can be verified and evaluated when such work demonstrates possession of the knowledges, skills, and abilities applicable to secretarial work.

For positions at GS–3

A general background in the performance of routine clerical duties which demonstrates that a candidate has *all* of the following:

—basic knowledge of office routines and functions sufficient to refer visitors and telephone calls and to route correspondence by name or functional area;

AND

—knowledge of clerical practices and procedures sufficient to file material and obtain requested information from the file;

AND

—knowledge of spelling, punctuation, and syntax sufficient to identify and correct grammatical errors.

Experience acquired through the performance of most kinds of clerical work in an office setting is normally considered qualifying; for example, clerk-typist, clerk-stenographer; administrative clerk, personnel clerk, medical clerk, legal clerk. Examples of experience which typically is *not* qualifying are store clerk and shipping clerk when these positions do not include general clerical work.

For positions at GS–4

A background in the performance of a variety of clerical duties which demonstrates that a candidate has *all* of the following:

—working knowledge of many different office procedures such as those needed to request a variety of office equipment, supplies, publication material, and maintenance services, when each of these requires a different procedure;

AND

—ability to understand an organization and its functions sufficient to establish file systems for classifying, retrieving, and disposing of materials; refer telephone calls and visitors; distribute and control mail; maintain leave records; and provide general and non-technical information.

Some examples of work experience normally considered as qualifying are clerk-typist, clerk-stenographer, administrative clerk, personnel clerk, medical clerk, legal clerk.

For positions at GS-5 and above

Experience in administrative or clerical work which demonstrates possession of the knowledges, skills, and abilities required to serve as a principal office assistant at these levels, including *all* of the following:

—ability to organize effectively the flow of clerical processes in an office;

AND

—ability to organize and design a filing system;

AND

—ability to make arrangements for such things as travel, conferences, and meetings;

AND

—ability to locate and assemble information for various reports, briefings, and conferences;

AND

—ability to compose non-technical correspondence.

SUPERVISORY POSITIONS

For supervisory positions, apply the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III, Handbook X-118, in conjunction with this standard.

QUALITY OF EXPERIENCE

Length of experience will not necessarily in itself be considered qualifying. The candidate's record must show the ability to perform the duties of the position to be filled.

For positions at GS-3

A candidate must have had six months of qualifying experience at GS-2 in the General Schedule or equivalent experience outside the General Schedule.

For positions at GS-4 or GS-5

A candidate must have had one year of qualifying experience at the next lower grade in the General Schedule or equivalent experience outside the General Schedule.

For positions at GS-6

A candidate must have had six months of qualifying experience at GS-5 in the General Schedule or equivalent experience outside the General Schedule.

For positions at GS-7 through GS-11

A candidate must have had six months of qualifying experience at the next lower grade in the General Schedule or equivalent experience outside the General Schedule *OR* one year of qualifying experience at the second lower grade in the General Schedule or equivalent experience outside the General Schedule.

For positions at GS-12 and above

A candidate must have had one year of qualifying experience at the next lower grade in the General Schedule or equivalent experience outside the General Schedule.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Except for any requirement for passing performance tests to demonstrate skill in shorthand and or typing (when required), the following will apply:

For positions at GS-3

All of the experience requirements for the GS-3 level may be met by completion of 1 academic year of full-time business school or 1 academic year of education above the high-school level.

For positions at GS-4

All of the experience requirements for the GS-4 level may be met by completion of 2 academic years of full-time business school or 2 academic years of education above the high-school level.

For positions at GS–5

All of the experience requirements for the GS–5 level may be met by completion of 4 academic years of education in an accredited college or university.

NOTE: Academic study alone is not creditable as qualifying experience for positions above the GS–5 level; i.e., no more than 4 years of academic study is creditable towards meeting experience requirements.

Combination of education and experience may be used to meet the minimum qualification requirements. For example, 3 academic years of education above the high-school level plus 6 months of qualifying experience as a GS–4 may be used to qualify a candidate for GS–5.

Courses that are not measurable in terms of credit hours (e.g., "certificate courses") should be treated as if they were work experience. However, no credit will be allowed for training which has been obtained only or primarily in the basic skills of shorthand or typing or refresher courses.

TYPING AND STENOGRAPHIC SKILLS

When secretary positions require skill in typing or stenography at or above the level of proficiency required under the competitive standards for these skills, the qualification standard for the skill should be used in conjunction with this (GS–318) standard to assure that candidates possess at least the minimum degree of skill required to perform the typing or stenographic duties of the position.

The level of stenographic proficiency required by positions classified as Secretary (Stenography) is based on the classification of the *stenography* duties and not necessarily on the grade level of the position. Therefore, before filling positions of this type, first determine the skill level required by the stenographic duties, i.e., 80 or 120 words per minute.

WRITTEN TESTS

No written test will be required at any grade level to establish basic qualifications of candidates, or to rank candidates. Performance tests may be required to demonstrate possession of stenographic or typing skill.

BASIS FOR RATING AND RANKING CANDIDATES

Candidates who meet the minimum qualification requirements will be rated on a scale of 70 to 100 based on an evaluation of the quality and extent of their experience, education, training, or other achievements pertinent to the duties of the positions to be filled.

Some kinds of training and experience which enhance the candidate's qualifications may be treated as factors to award extra credit for rating and ranking purposes. These include, but are not limited to, the following:

—Possession of a certificate as a "Certified Professional Secretary";
—Successful completion of in-service courses which offered training in areas related to the secretarial function, general management or administration, or the program area with which the supervisor is concerned;
—Successful completion of work-related educational courses in excess of those used to meet minimum requirements; for example, courses in office practice;
—Recognition for exceptional work performance.

INSERVICE PLACEMENT

Guide for Evaluating Candidates in Relation to Job Requirements

Guidelines for appraising employees' qualifications and promotion potential are discussed in FPM Supplement 335–1, *Evaluation of Employees for Promotion and Internal Placement.*

The evaluation of a candidate for positions in the series covered by this standard should focus on those knowledges, skills, and abilities which indicate the candidate's ability to perform the duties of the position successfully. The skills and abilities needed in each position differ with the organization of the work and the type of work performed. Accordingly, the employee's

training and experience should be evaluated in terms of the knowledges, skills, and abilities needed for success *in the job to be filled.*

Information about the necessary knowledges, skills, and abilities is available from a variety of sources including, but not limited to:

—Written performance appraisals and supervisory evaluations;
—Personal interviews with present and former supervisors, and with candidates;
—Personnel folders and personal qualification statements;
—Reference inquiries;
—Supplemental application forms or questionnaires completed by candidates.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules. Also all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual, Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operator and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Clerk-Typist GS–322–2, 3, and 4

DESCRIPTION OF WORK

Clerk-Typists perform typing work from written material or voice recordings solely or in combination with clerical work other than that covered by a specialized series; or supervise typing work when typing skill is an essential requirement of the supervisory position.

Positions very substantially with respect to whether the particular duties which are the basis for the grade level require typing or clerical skills, or a combination. Some clerk-typists perform typing work and little or no clerical work. Some positions consist of a mixture of typing duties and duties of a general clerical nature. In actions involving positions where the general clerical duties are of a higher level of difficulty than the typing duties, use the qualification standard for Clerk (various positions) GS–1, 2, 3 or Clerk GS–4/6 in the General Administrative, Clerical, and Office Services Group, GS–300, and in addition, use the following qualification standard to assure that candidates possess the degree of typing skill required.

Some positions requiring typing skill at or above the level of proficiency required for entry level positions under this standard are classified in other series because other work skills or abilities form the paramount qualification requirements for the positions. These positions are classified in the series appropriate for the *paramount* requirement and the word "Typing" is parenthetically added to the class title to indicate the need for selective certification. In actions involving such positions, the qualification standards established for the series in which the positions are classified, rather than this qualification standard, are to be used. The clerk-typist standard may be used to assure that candidates possess the degree of typing skill required to perform the duties of the position.

KNOWLEDGES, SKILLS, AND ABILITIES REQUIRED

For GS–2 level, the minimum qualification requirement is demonstrated ability in the following:

—Skill in operating a manual, electric, or automatic typewriter to type a variety of material accurately;

—Knowledge of English usage;*

—Ability to learn and perform clerical procedures.

For GS–3 level: In addition to the knowledges and skills described at the GS–2 level, ability in the following job elements:

—Skill in operating a manual, electric, or automatic typewriter to type in final form a variety of narrative and tabular material from rough draft, corrected copy, and/or voice recordings;

—Ability to insure correct spelling, punctuation, capitalization, and basic grammar when subject matter is normal and routine.

For GS–4 level: In addition to the knowledges and skills described at the GS–3 level,

—Skill in operating a manual, electric, or automatic typewriter to type unusually difficult and complex material. Examples of work at this level of difficulty may be found in Part I of the Typing and Stenography Grade Evaluation Guide under Factor 1, Level 1–3;

—Knowledge of format and clerical procedures to arrange a variety of material from different sources in a neat and understandable manner.

MINIMUM ACCEPTABLE EVIDENCE OF NECESSARY QUALIFICATIONS

For GS–2 positions

—Must pass the appropriate written test;

AND

—Pass the typing performance test required, OR present a form of certification accept-

*When either knowledge of a language other than English or bilingual ability is an appropriate selective factor (see Selective Placement paragraph on page 3 of this standard), alternate examining procedures will be used.

able to the Office of Personnel Management attesting to the required degree of proficiency in typing.

For GS–3 positions

—Must pass the appropriate written test;

AND

—Pass the typing performance test required, or present a form of certification acceptable to the Office of Personnel Management attesting to the required degree of proficiency in typing;

AND

—Have had six months of appropriate experience, OR have completed one year of substantially full-time study in a business, secretarial, commercial school, college, junior college, or university above the high school level.

For GS–4 positions

—Must possess the degree of typing proficiency required;

AND

—Have had one year of appropriate experience in addition to the experience/education requirement at GS–3 level. No substitution may be made for the one year experience requirement at the GS–4 level.

DEFINITIONS OF TERMS USED

"*Appropriate experience*" is either clerical experience which included typing as a significant part of the work, or any type of clerical work that demonstrates the ability to perform the duties of the position to be filled, *provided* that the candidate demonstrates an adequate degree of proficiency in typing.

"*School above the high school level*" means an educational institution (e.g., a business or commercial school or college, a secretarial school, a junior college, or a college or university) for which high school graduation or the equivalent is prerequisite and in which the candidate successfully completed study which was not primarily limited to courses in typing or stenography, or both.

"*Substantially full-time study*" in the case of business and commercial schools is the equivalent of at least 20 classroom hours of instruction per week.

"*One academic year*" consists of approximately 36 weeks of substantially full-time study, or 30 semester hours, or the equivalent.

CREDITING EDUCATION OR TRAINING

Study completed in an institution above the high school level is evaluated as evidence of ability in terms of its relatedness to the knowledges, skills, and abilities described in this standard.

Study completed in a business or secretarial school or other comparable institution above the high school level is creditable provided such job-related subjects as business English, office machines, filing and indexing, office practices, or medical or legal terminology were studied.

Study completed in a junior college, college, or university is creditable provided such study included a minimum of 6 semester hours, or the equivalent, per year in job-related subjects such as English Composition or a subject which equipped the candidate with the knowledges, skills, and abilities required at the level of the position. For example, courses in biology or anatomy provide vocabulary knowledges related to a job involving medical terminology.

No credit will be allowed for training which has been obtained only or primarily in the basic skills of shorthand or typing or refresher courses.

WRITTEN AND PERFORMANCE TESTS

Sighted candidates for GS–2 and GS–3 positions must pass the verbal and clerical abilities tests. Visually handicapped applicants for GS–2 and GS–3 positions will be required to pass the test on verbal abilities but not the clerical aptitude test. Deaf applicants at these levels will be required to take the clerical aptitude test, but not the test on verbal abilities. All candidates for clerk typist positions must either pass the typing performance test required or present a form of certification acceptable to the Office of

Personnel Management attesting to the required degree of proficiency. For these positions the required minimum typing speed is 40 standard words per minute.

Written and performance tests may not be waived for appointments outside the register, but may be waived for inservice promotion and placement where adequate basis exists for evaluating the skills and abilities measured by these tests. If tests are used, they must be applied in accordance with FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement.

QUALITY OF EXPERIENCE

For positions of Clerk-Typist GS–3, the six months experience must have been at a level equivalent to the next lower grade in the Federal service.

For positions of Clerk-Typist GS–4, one year of the required experience must have been at a level equivalent to the next lower grade in the Federal service. The required amount of experience will not in itself be accepted as proof of qualification. The candidate's record of experience and training must show the ability to perform the duties of the position to be filled.

SUPERVISORY POSITIONS

Apply the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III, Handbook X–118, in conjunction with this standard.

BASIS OF RATING

All candidates for GS–2 and GS–3 positions must pass the appropriate tests specified in the written test paragraph above, and either pass the typing performance test required or present a form of certification acceptable to the Office of Personnel Management attesting to the required degree of proficiency. Certification attesting to at least the required proficiency in typing may be submitted *only* in lieu of passing the typing performance test. Rank on the register will be based on the scores for the verbal and clerical abilities tests. The typing test is not used for ranking purposes.

Candidates for positions at GS–4 will be evaluated on the basis of qualifying experience, education, and training which demonstrates possession of the knowledges, skills, and abilities required in the positions to be filled.

SELECTIVE PLACEMENT

Because positions in this series vary in the organization of the work and the type of work performed, the actual skills and abilities needed in positions differ. For example, the difficulty and frequency of typing tasks varies from one clerk-typist job to another. In some instances the grade level of a job is based on the difficulty of the typing work; in other positions the clerical duties and responsibilities determine the grade level. Agencies may utilize selective placement of candidates to assure an optimum match between the capabilities of candidates and the requirements of positions to be filled. Examples of requirements of positions which may be appropriate selective factors are: bilingual ability, knowledge of a language other than English, or knowledge of specialized terminology.

Requests for certificates based on selective placement needs should include a copy of the current position description and any additional information needed to document the job-relatedness of a requested factor. Selective factors must be essential for minimally acceptable performance on the job (see FPM Chapter 332, Appendix B).

INSERVICE PLACEMENT

Guide for Evaluating Candidates in Relation to Job Requirements

Guidelines for appraising employees' qualifications and promotion potential are discussed in FPM Supplement 335–1, *Evaluation of Employees for Promotion and Internal Placement.*

The evaluation of a candidate for positions in the series covered by this standard should focus on those knowledges, skills, and abilities which indicate the candidate's ability to per-

form successfully the duties of the position. The actual skills and abilities needed in each position differ with the organization of the work and the type of work performed. Accordingly, the employee's training and experience should be evaluated in terms of the knowledges, skills, and abilities needed for success *in the job to be filled.*

Information about the necessary knowledges, skills, and abilities is available from a variety of sources including, but not limited to:

(1) Written performance appraisals and supervisory evaluations;
(2) Personal interviews with present and former supervisors, and with candidates;
(3) Personnel folders and personal qualification statements;
(4) Reference inquiries;
(5) Supplemental application forms or questionnaires completed by candidates.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to safely and efficiently perform the essential functions of the position. Depending on the essential duties of a specific position, usable vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform. Reasonable accommodation may include, but is not limited to: job modification (making physical changes to the worksite, modifying office equipment), provision of assistive devices (i.e., special office equipment, "one-handed" typewriters, print enlargers), job restructuring (eliminating or modifying nonessential job duties such as answering telephones, modifying hours of work), and/or provision of readers for blind persons and interpreters for deaf individuals.

For Supervisory and Nonsupervisory Positions

GS-2/13 in the Computer Operation Series, GS-332

DESCRIPTION OF WORK

Computer Operators are primarily responsible for the operation of the control console of a computer and all elements of the system which are directly connected with it. This involves readying the equipment for operation, starting it, monitoring its operation, and taking prompt action in response to machine commands or unscheduled halts.

EXPERIENCE, EDUCATION, AND TRAINING REQUIREMENTS

Applicants must have the kinds, quality, and amounts of experience indicated in the following table and explanatory information.

Grade	General Experience (years)	Specialized Experience (years)	Total Experience (years)
2	½	0	½
3	1	0	1
4	2	0	2
5	2	1	3
6	2	2	4
7 & above	2	3	5

General Experience—experience in the operation of electric accounting machines (e.g., sorters, reproducers, tabulators, calculators, and other wired equipment); *or* clerical experience (general office work); *or* experience in the operation of office business machines and other machines such as card punch, verifier, and the like.

Specialized Experience—experience in the operation of a computer system or peripheral device used in support of computer operations.

Specialized experience also may be experience in other computer-related occupations such as those involving programing, systems analysis, production control, scheduling, or others that are directly related.

Substitution of Education for Experience

In crediting education above the high school level, one year of study is equal to 30 semester hours or the equivalent (e.g., 45 quarter hours or 24 weeks at 20 hours per week in technical school). A school above the high school level is an accredited educational institution (e.g., a business, technical, or commercial school or college; a junior college; or a college or university) for which high school graduation or the equivalent is a prerequisite. Education may be substituted for work experience according to the following criteria.

GS-2	Graduation from a 4 year high school or GED equivalent.
GS-3	Successful completion of 1 year of study in a school above the high school level in any field of study,
	OR
	Successful completion of a full-time, or equivalent part-time, course of study in computer operations in an accredited vocational or technical school above the high school level.
GS-4	Successful completion of 2 years of study in a school above the high school level.
GS-5	Completion of 4 years of study above the high school level which includes at least 12 semester hours in any one or a combination of the following: mathematics, statistics, data processing, or other pertinent or related fields.

In evaluating combinations of experience, education and training, 1 academic year of study may be substituted for 1 year of general experience or 6 months of specialized experience. Academic study may be substituted for a maximum of 1 year of specialized experience.

QUALITY OF EXPERIENCE

For positions at any grade the amount of experience will not in itself be accepted as proof of qualification. The applicant's record of experience and training must show that he/

she has the ability to perform the duties of the position. In addition:

For grade GS-5, except for those who qualify on the basis of education alone, at least 6 months of the required specialized experience must have been comparable in difficulty and responsiblity to the GS-4 level in the same or related work (e.g., computer clerk or assistant).

For grade GS-6 and above, in addition to education, training, and/or experience credited at lower levels, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service or 2 years comparable to the second lower grade in the Federal service.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for Supervisory Positions in the General Schedule Occupations in Part III of Handbook X-118 should be used in conjunction with the requirements in this standard.

WRITTEN TEST

Applicants for competitive appointment to grades GS-2/4 must pass a written test.

BASIS FOR RATING

For GS-2/4 applicants will be rated on the basis of written test scores. For positions at grades GS-5 and above, applicants will be rated on an evaluation of the quality and extent of their experience, education, or training.

RELATING QUALIFICATIONS FOR CANDIDATES TO JOBS HAVING SPECIAL REQUIREMENTS

The numbers and kinds of computers, and the primary purposes they serve, differ among various work situations (e.g., communications, multiprocessing, satellite tracking) and may vary widely. Consequently, the particular demands of positions in these different work situations may vary widely. Referral of candidates for these positions may be limited to those whose records show evidence of the required capabilities.

GUIDES FOR INSERVICE PLACEMENT ACTIONS

The standard for inservice placement actions is basically the same as for entry into the Federal service, with the exception of the following:

1. In inservice placement actions, a written test is not required. The applicants' experience and training must have demonstrated that candidates have the ability to acquire the knowledges necessary to perform successfully the duties of the position.
2. For reassignments to positions in the occupation at grade GS-5 and below, the requirement for specialized experience may be waived when (a) the employees are selected based on evidence that they have the aptitude necessary to progress in this field of work, and (b) a formal training plan exists to train the employees in computer operations.
3. One year of experience in the operation of electric accounting machines may be substituted for the 1-year specialized experience requirement for grade GS-5. This experience must have provided the candidate with a good overall knowledge of the data processing system and the machines operated in the system.
4. Intensive training courses sponsored or recognized by agencies or activities may be substituted for experience at the rate of 1 month of training for 2 months of experience for a maximum of 1 year of specialized experience. Training courses are substitutable only when they provide on-the-job training and access to computers and peripheral devices for practical experience in solving processing problems.

PHYSICAL REQUIREMENTS

The following requirements apply to employees occupying positions covered by this

standard as well as to applicants for such positions. Applicants and employees must be able to perform the essential functions of the position without risk to themselves or others. In most cases, a specific medical condition or impairment will not automatically disqualify an applicant or employee. A physical condition or impairment may be disqualifying only if the condition, for good medical reason, precludes assignment to or warrants restriction from the duties of the specific position. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation shall also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

COMPUTER SPECIALIST SERIES

QUALIFICATION STANDARD

Computer Systems Analyst GS–5/15
Computer Programer GS–5/15
Computer Programer Analyst GS–5/15
Computer Systems Programer GS–5/15
Computer Programer Analyst GS–5/15
Computer Specialist GS–5/15

DESCRIPTION OF WORK

Positions in this series advise on, supervise, or perform work necessary to design or implement systems for solving problems or accomplishing work processes by the use of digital computers. Except for entry level positions, the paramount requirement is knowledge of computer requirements and techniques.

Computer System Analysts are concerned with analysis of problems or processes and design of computerized systems for accomplishment of the work. Representative assignments include performance of feasibility studies for proposed computer applications in a subject matter area (e.g., payroll processing, control of incoming aircraft), development of an application's programing specifications, or analysis of existing applications systems to correct problems.

Computer Programers are concerned with translating system designs into the plans of instructions and logic by which computers can produce the desired actions or products. Knowledge of a particular programing language (e.g., COBOL, FORTRAN) is an important consideration in recruitment for these positions.

Computer Programer Analysts perform work which is a combination of Computer Systems Analyst and Computer Programer duties.

Computer Systems Programers are concerned with systems software. This typically involves maintenance and modification of assemblers, compilers, debugging routines, and similar internal computer programs necessary for the processing of other programs.

Computer Equipment Analysts are concerned with the selection or utilization of computer equipment. These positions do not involve design or repair of equipment; concern is with the relative merits of equipment items (e.g., mainframe computers, disk memory devices, printers, terminals) and the arrangement of the items into equipment systems appropriate to an organization's needs.

Computer Specialists perform work of a kind or combination of duties that does not fall under one of the above specializations but does have as the paramount requirement knowledge of computer requirements and techniques.

Further information about the nature of the work performed by employees in the Computer Specialist Series may be obtained from the position classification standard.

PROMOTIONS

The provisions of 5 C.F.R. 300, Subpart F, must be complied with concerning the rate at which employees may be promoted, irrespective of their qualifications.

KNOWLEDGES, SKILLS AND ABILITIES

Persons who possess the physical ability and the knowledges and skills to successfully perform the work of the position to be filled are qualified.

Physical Ability

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: The use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted

work schedules. Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in FPM Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Knowledges and Skills

The requirements in this standard reflect the fact that proficiency in application of knowledges and skills at a given level indicates probability of success in similar work at the next higher level. The requirements are keyed to the progression of grade levels set forth in the classification standard. Successful accomplishment of assignments at the next lower grade in the normal line of promotion to the position being filled demonstrates capability to do work of the required level of difficulty and responsibility. Work in other fields which has provided the same kind and level of knowledges and skills similarly is qualifying. Education is substitutable for practical experience when the education has provided the knowledges and skills.

The minimum knowledges and skills at the GS–5 and GS–7 entrance levels are more general than the knowledges and skills required for positions at the GS–9 and above. The GS–5 and GS–7 levels require basic analytic and communicative skills combined with broad general knowledges. The knowledges and skills required for GS–9 and above are more specialized. Persons typically gain and demonstrate these more specialized knowledges and skills through a) successful performance in lower grade level positions in this series, b) related work experience in other fields, or c) graduate study in fields such as data processing or computer science.

Selective Factors

Selective factors are knowledges and skills of a kind and level which reasonably could not be acquired on the job without undue interruption of the organization's production. Selective factors must be job related, represent an extension of the basic knowledges and skills required of the position and be essential to successful performance of the position.

Owing to the diversity of work in the Computer Specialist Series, the use of selective factors normally will be required in filling positions above the developmental level. Some factors, such as knowledge of a certain level of mathematics, may be appropriate for positions at any level. At the GS–9 and higher grades, knowledges and skills typically will be needed which relate to both the specialty of the position and the particular duties and responsibilities involved. For example, patterns of selective factors for a sample of full performance positions might be:

—For a Computer Programer Analyst position, a) proficiency in the use of a particular higher level programing language (e.g., COBOL), b) skill in development and implementation of specifications for applications programs, and c) knowledge of techniques pertinent to the appropriate broad category of subject matter applications (i.e., scientific applications or business applications).

—For a Computer Systems Programer position, a) proficiency in the use of a particular assembly level programing language (e.g., ALC), b) knowledge of general techniques for analysis of system software requirements, and c) skill in development and implementation of specifications for system software programs.

—For a Computer Equipment Analyst position, a) knowledge of techniques for analysis of computer equipment requirements, b) knowledge of techniques for evaluation of computer equipment, c) skill in development of specifications for procurement of computer equipment, and d) knowledge of a broad category of equipment (e.g., telecommunications related computer equipment).

Positions at GS–12 and above commonly involve very demanding and responsible roles, often with little or no "back up" expertise available in the organizational unit. Therefore, selective factors for positions at these grades typically will be more narrowly defined and/or set at a higher level than is necessary at lower grades. What may be appropriate as a quality ranking factor at a lower grade may have to be a selective factor in a higher graded position. For example, knowledge of statistical methods and accounting techniques normally would be a quality ranking factor in filling positions concerned with an automation project involving such methods and techniques. However, this knowledge normally would constitute a selective factor in filling the position of the project leader responsible for planning the overall approach and integrating segments of the system where these methods and techniques were of critical importance.

For supervisory positions, the following qualification requirements are to be used in conjunction with the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this Handbook.

MINIMUM QUALIFICATION REQUIREMENTS

For the GS–5 Level

A. A background which includes one year of work at no lower than GS–4 or equivalent and demonstrates:

1. Skill in analyzing problems, to include identifying relevant factors, gathering pertinent information and recognizing solutions,
2. Skill in doing thorough, accurate work that requires planning a logical sequence of steps, and
3. Skill in communicating, both orally and in writing.

Such skills typically are gained in administrative, technical, or investigative lines of work. It is also possible to acquire these skills through a variety of other means, such as volunteer work, vocational training, or substantive clerical work.

OR

B. Completion of a four year course in an accredited college leading to a bachelor's degree in any field.

AND

(In the case of A or B)

C. Evidence of possession of any selective factors appropriate to the position to be filled.

For the GS–7 Level

A. A background which includes one year of work at no lower than GS–5 or equivalent and demonstrates skills related to the computer field through performance of tasks such as:

—translating detailed logical steps developed by others into language codes that computers accept where this requires understanding of procedures and limitations appropriate to use of a programing language.

—interviewing subject matter personnel to get facts regarding work processes and synthesizing the resulting data into charts showing information flow.

—operating computer consoles where this involves choice among various procedures in responding to machine commands or unscheduled halts.

—scheduling the sequence of prog. ns to be processed by computers where alternatives must be weighed with a view to production efficiency.

—extracting and compiling information concerning an equipment feature where this involves selecting pertinent data from catalogs, manufacturer's literature, and previous studies.

—preparing documentation on cost/benefit studies where this involves summarizing the materials and organizing them in logical fashion.

Such skills typically are gained as a trainee in the Computer Specialist Series, as a Computer Operator or Assistant, or through performance of work where the primary concern was the subject matter of the computer application (e.g., supply, personnel, chemical process control) and one or more of the above types of computer related efforts were required to facilitate the basic duties. Also, work in management analysis, program analysis, or a comparable field often provides such skills.

OR

B. Superior Academic Achievement as defined in Part II, Section III of this Handbook.

OR

C. Completion of one full academic year of graduate study in any field.

AND

(In the case of A, B, or C)

D. Evidence of possession of any selective factors appropriate to the position to be filled.

For the GS-9 Level

A. A background which includes one year of work at no lower than GS-7 or equivalent and demonstrates knowledges of computer requirements and techniques in carrying out project assignments consisting of several related tasks, such as typically is the case in development of minor modifications to parts of a system on the basis of detailed specifications provided. To be qualifying for the GS-9 level the assignments must have shown completion of the following, or the equivalent:

1. Analysis of the interrelationships of pertinent components of the system,
2. Planning the sequence of actions necessary to accomplish the assignment, and
3. Personal responsibility for at least a segment of the overall project.

Such knowledges and skills typically are gained in the Computer Specialist Series or through performance of work where the primary concern was the subject matter of the computer application (e.g., supply, personnel, chemical process control), and the above types of computer related efforts were required to facilitate the basic duties. Also, work in management analysis, program analysis, or a comparable field often provides such knowledges and skills.

OR

B. Completion of two full academic years of graduate study, or all requirements for a master's or equivalent degree, in a computer related field such as computer science, data processing, or information processing science.

AND

(in the case of A or B)

C. Evidence of possession of any selective factors appropriate to the position to be filled.

For the GS-11 level

A. A background which includes one year of work at no lower than GS-9 or equivalent and demonstrates accomplishment of computer project assignments that required a range of knowledges of computer requirements and techniques. For example, this level would be shown by assignments where, on the basis of general design criteria provided, the person developed modifications to parts of a system that required significant revisions in the logic or techniques used in the original development. In addition to the characteristics noted for the GS-9 level, qualifying accomplishments for the GS-11 level involve the following, or the equivalent:

1. Knowledge of the customary approaches, techniques, and requirements appropriate to an assigned computer applications area or computer speciality area in an organization,
2. Planning the sequence of actions necessary to accomplish the assignment

where this has entailed a) coordination with others outside the organizational unit and b) development of project controls, and

3. Adaptation of guidelines or precedents to the needs of the assignment.

Such knowledge and skills typically are gained in the Computer Specialist Series or through performance of work where the primary concern was the subject matter of the computer application (e.g., supply, personnel, chemical process control) and the above types of computer related efforts were required to facilitate the basic duties. Also, work in management analysis, program analysis, or a comparable field occasionally provides such knowledge and skills.

OR

B. Completion of three full academic years of graduate study, or all requirements for a doctoral degree (Ph. D or equivalent), in a computer field such as computer science, data processing, or information processing science when 1) the position to be filled involves highly specialized work and 2) the graduate work is directly pertinent to the duties and responsibilities of the position.

AND

(In the case of A or B)

C. Evidence of possession of any selective factors appropriate to the position to be filled.

For the GS-12 and above

A. A background which includes one year of work at no lower than the next lower grade or equivalent and demonstrates accomplishment of computer project assignments that required a wide range of knowledges of computer requirements and techniques pertinent to the position to be filled. This normally will have included knowledges of how the work is carried out in other organizations. For example, this level is shown by assignments where the person has analyzed a number of alternative approaches in the process of advising management concerning major aspects of ADP system design such as what system interrelationships must be considered, or what operating mode, system software, and/or equipment configuration is most appropriate for a given project. In addition to the characteristics noted for the GS-9 and GS-11 level, to be qualifying for the GS-12 and above the assignments will have involved performance of studies, such as feasibility studies, where alternatives were evaluated, reports prepared, and recommendations made.

Such knowledges and skills typically are gained in the Computer Specialist Series.

AND

B. Evidence of possession of any selective factors appropriate to the position to be filled.

RANKING QUALIFIED CANDIDATES

Refer to FPM Supplement 335-1 for detailed information on evaluation methods. A suggested procedure is to analyze the requirements of the position and determine, in addition to selective factors essential to satisfactory performance, quality ranking factors which would distinguish the better qualified candidates among those who meet the minimum requirements. Quality ranking factors will vary considerably, depending on the nature and level of the position to be filled. (Where appropriate, selective factors may also serve as quality ranking factors.)

Positions at GS-5 and GS-7

Evaluation of candidates for positions at GS-5 and GS-7 should be based on evidence indicating probable success at higher level assignments, i.e., the work of the full performance target positions in the career ladder of the organization.

Other things being equal, candidates who can be expected to achieve full performance compe-

tence most quickly usually will be distinguished by:

1. The quality of achievements that indicate ability in analyzing problems,
2. The caliber, job relatedness, and extent of education or experience which provided familiarity with data processing concepts, terminology and techniques, and
3. For applications oriented positions (e.g., computer programer), the degree of subject matter knowledge of the work process to be automated.

Positions at the GS–9 and above

Evaluation of candidates for positions at GS–9 and above should be based on:

1. Knowledges and skills specific to the position vacancy, and
2. Evidence of the capacity to accept change and keep pace with the rapidly evolving computer technology.

Examples of quality ranking factors specific to a position, when supported by the position description, could be the degree of: a. skill in planning, developing, and conducting training, b. knowledge of a specific application (e.g., supply, biological, or weapons fire control), c. familiarity with a specific model of computer (e.g., the CDC 6600), d. knowledge of techniques for development of ADP standards (e.g., on documentation or equipment selection), e. knowledge of data base design, f. skill in simulation of new applications, and/or g. familiarity with specific operating modes (e.g., batch or time sharing).

Considerations in evaluating the capacity to accept change and keep pace with the technology could include the extent to which the candidate's background shows: a. success in a diversity of work in the computer field, b. development of systems or programs for which no precedents exist, c. accomplishments which involved the use of advanced design or programing techniques, and/or d. evidence of continuing self development, such as pertinent course work or publication of papers in ADP society journals.

COMPUTER CLERK AND ASSISTANT SERIES

Computer Clerk, GS–2/4
Computer Assistant, GS–5/9

DESCRIPTION OF WORK

Computer Clerks and Computer Assistants perform a variety of work in support of specialists and computer operators engaged in the design and operation of computer systems. Employees in this occupation also support functional users of computer systems by accepting processing requirements, preparing them for execution, and in some cases performing or directing program execution through remote terminals, distributing the products and performing related control and proccessing support duties. These tasks are complementary to and support such specialized computer systems work as analysis, design, programing, installation, operations and system management.

Computer Clerks perform such tasks as: (1) labeling, maintaining and controlling tapes, disks and other storage media and documentation in tape libraries; (2) preparing processing schedules for jobs that are executed in simpie sequence and have dependencies that are readily accommodated; (3) maintaining a variety of computer program files, records, manuals and related documents; or, (4) tracing sources of procedural errors in documents, data and control records.

Computer Assistants perform limited phases of computer specialist functions in addition to project control and scheduling work such as: (1) translating program routines and detailed logic steps designed by others into instructions, codes, or languages that machines can accept; (2) preparing charts showing the flow of documents and data in assigned subject areas; (3) preparing daily, or longer schedules for program processing sequences where multiple systems, multi-processing, dependencies, contentions and similar conditions effect the scheduling processes; (4) assembling, modifying controls, annotating instructions and staging the materials and documentation required for machine processing; and/or, (5) tracing and identifying the sources of processing failures, correcting those associated with system controls, introducing new or revised schedules of program processing and providing control stream modifications to take advantage of alternative operating system hardware configurations and processing techniques.

Computer Clerk positions are characterized by a requirement for computer related clerical support knowledge. These include knowledge of media (tapes, disks, cards), codes, abbreviations, control systems for logs, inventory records, and related procedural manuals, documents and system utilization records.

Computer Assistants are generally distinguished by the requirement for a working knowledge of computer processing methods and flow of work to and through the computer, and for knowledge of processing and control languages, or comparable knowledges. Some positions require limited knowledge of the requirements and techniques of computer programing and/or systems analysis. (Refer to the classification standard for this series for more complete information regarding the nature of the work.)

EXPERIENCE REQUIREMENTS

Applicants must have the kind, quality and amount of experience indicated in the following table and explanatory information.

Grade	General Experience (years)	Specialized Experience (years)	Total Experience (years)
1	0	0	0
2	½	0	½
3	1	0	1
4	2	0	2
5	2	1	3
6	2	2	4
7 and above	2	3	5

General Experience—any experience which includes work associated with following written directions, procedures, or systematic work methods such as in classifying and maintaining records, or comparable clerical support work which gives evidence of the ability to perform this kind of work.

Specialized Experience—any experience in computer clerical or other computer related support work requiring knowledge of computer terminology, processing methods, controls, media and data flow. OR: Experience requiring proficiency in translating actions into a computer programing language (COBOL, FORTRAN, ALGOL, etc.); preparing and interpreting program and system charts and instructions; or other work requiring comparable knowledges of computer processing techniques.

Substitution of Education for Experience

In crediting education above the high school level, one year of study is equal to 30 semester hours or the equivalent (e.g., 45 quarter hours, or 24 weeks at 20 hours per week in technical school). A school above the high school level is an accredited educational institution (e.g., a business, technical or commercial school or college, a junior college, or a college or university) for which high school graduation or the equivalent is a prerequisite. Education may be substituted for work experience according to the following criteria:

GS-2 Graduation from a 4 year high school or GED equivalent.

GS-3 Successful completion of a 2 year course, including instruction and practice in data processing in high school which provides knowledge of electronic computer systems, programing, media (tape, disks, and/or drum), input and retrieval methods. (NOTE: ADP training in high schools in typically, although not exclusively offered in vocational education programs. The training commonly provides a foundation of knowledge and some application of the concepts, terminology, languages, preparation, controls and interdependence appropriate to positions in this occupation. Some courses offer opportunity to directly operate computer systems while others use remote terminal job entry techniques. However, specific knowledge or ability as computer operators is not essential to this occupation and is not required when crediting high school ADP training.) OR:

Successful completion of 1 year of education above the high school level that includes at least six semester hours, or equivalent in data processing courses (no credit is allowable for training obtained only or primarily in the basic skills of shorthand or typing or refresher courses). OR:

Successful completion of a full time (20 hours per week or equivalent) concentrated course of study of at least 6 months duration which includes systems design and programing instruction and practice in a technical school above the high school level.

GS-4 Successful completion of two years of study above the high school level which includes at least 12 semester hours (or equivalent) in courses such as computer mathematics, basic and advance programing, data processing, computer operations, or other ADP related courses of study and practice.

GS-5 Successful completion of four years of study above the high school level which includes at least 24 semester hours (or equivalent) in courses such as those described above for GS-4.

QUALITY OF EXPERIENCE

In evaluating combinations of experience, education and training, one academic year of study may be substituted for one year of general experience or six months of specialized experience. Academic study may be substituted for a maximum of one year of specialized experience.

For positions at any grade the amount of experience will not in itself be accepted as proof of qualifications. The applicant's record of ex-

perience and training must show the ability to perform the duties of the positions. In addition:

For grade GS–5, except for those who qualify on the basis of education alone, the 1 year of required specialized experience must have been comparable in difficulty and responsibility to the GS–4 level in the same or closely related work.

For grade GS–6 and above, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service or 2 years comparable to the second lower grade in the Federal service.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for Supervisory Positions in the General Schedule Occupations in part III of Handbook X–118 should be used in conjunction with the requirements in this standard.

WRITTEN TEST

Applicants for competitive appointment to grades GS–2/4 must pass a written test except that the written test should be waived for applicants who qualify on the basis of specialized training or experience in the data processing field.

BASIS FOR RATING

For GS–2/4 applicants will be rated on the basis of written test scores except for applicants for whom the written test is waived. For such applicants and for positions at grades GS–5 and above, applicants will be rated on an evaluation of the quality and extent of their experience, education or training.

GUIDES FOR IN-SERVICE PLACEMENT ACTIONS

The standard for in-service placement actions is basically the same as for entry into the Federal service, except that the written test may not be used on a pass-fail basis. For information on when and how a test may be used in evaluating eligible employees, see FPM Supplement 335–1. For in-service placement actions, the experience and training must have demonstrated that candidates have the ability to acquire the knowledges necessary to perform successfully the duties of the position to be filled.

Ranking plans should be developed which are tailored to the requirements of the specific jobs, and which reflect the more detailed knowledge available regarding candidate's experience, such as the following.

1. Experience as a computer operator is fully qualifying as specialized experience for this occupation and is particularly appropriate to scheduling and production control work. Such experience should be given more weight in ranking candidates than work with peripheral equipment (including terminals) at comparable levels.
2. Experience in data processing operations involving the use of equipment should be given more weight in ranking candidates than general clerical work at comparable levels. In rating candidates for computer assistant positions such experience should demonstrate the applicant's ability to plan and carry out projects. Typically, this would involve such representative tasks as: determining project requirements, the mechanical steps necessary, the sequence of such steps and the equipment to use, setting up and wiring equipment.
3. Experience as clerks in subject-matter areas that are automated should be given more weight in ranking candidates than comparable work in other subject-matter fields.
4. Evidence that candidates have successfully completed training or education courses in computer methods and techniques should also be considered in ranking. Such training must be sufficient in length and content to demonstrate that candidates have acquired the ability to apply computer methods, techniques, languages or instructions to the degree required in the jobs to be filled.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to safely and efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

ADMINISTRATIVE OFFICER SERIES

Administrative Officer GS-9/15

Administrative Assistant GS-5/7

DESCRIPTION OF WORK

An administrative officer performs, supervises, directs, or advises on work involved in providing or negotiating for a variety of essential management services. Any combination of the following services, or similar or closely related activities, may be involved: funds management, personnel management, management analysis, procurement, contract administration, property management, space management, data processing, travel and transportation management, public information, safety, and security.

An administrative officer assists and advises both the head of the organization he serves and other officials in that organization in matters pertaining to management services. His central purpose is to facilitate the accomplishment of the work of the organization through providing, obtaining, and/or coordinating management services and integrating them with the general management of the organization.

EXPERIENCE AND EDUCATION

Table of Minimum Experience Requirements

Grade	Total experience (years)	General experience (years)	Specialized experience (years)
GS-5	3	3	
GS-7	4	3	1
GS-9	5	3	2
GS-11 & above	6	3	3

General experience is experience in administrative, professional, investigative, technical or other responsible work which provided opportunity for the applicant to gain: (*a*) a general knowledge of management practices and administrative processes; (*b*) skill in dealing with others in person-to-person work relationships; and (*c*) the ability to exercise mature judgment.

Specialized experience is experience in administrative, supervisory, managerial, professional or technical work which provided the applicant an opportunity to acquire a knowledge of management principles, practices, methods and techniques; and an understanding of the needs and problems of administering public programs; and which required use of most (i.e., all but one or two) of the following abilities:

—ability to establish and maintain effective personal relationships in a work situation;
—ability to make clear oral and written presentations;
—ability to interpret complex written material;
—ability to analyze work problems having an administrative aspect (as distinguished from problems involving primarily a technical or subject-matter knowledge of the work);
—ability to plan, organize and coordinate work in situations where numerous diverse demands are involved;
—ability to expedite work where numerous "short-range" tasks are involved;
—adaptability, especially ability to adjust to changes in policies and procedures.

QUALITY OF EXPERIENCE

For grades GS-7 through GS-11, at least 6 months of the required specialized experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service, or at least 1 year must have been comparable to the second lower grade in the Federal service. At grade GS-12 and above, at least 1 year of the required *specialized experience* must have been at a level of difficulty comparable to the next lower grade in the Federal service.

For all except trainee positions, the total experience of the applicant must have been of such scope and quality that it gives positive evidence that he has the aptitudes, knowledges, abilities, and managerial skills needed to perform administrative officer duties at the level of the position to be filled.

SPECIAL ADDITIONAL REQUIREMENTS FOR SOME POSITIONS

For supervisory positions which are above the first level of supervision and involve responsibility for the work of a significant number of

subordinates (e.g., about 10 or more), the applicant must have had experience which demonstrated the ability to direct and develop a subordinate staff.

For positions which require extensive specialized knowledge in particular management service areas such as contract administration or procurement, the applicant's *total* experience and training must give evidence of having provided him with such specialized knowledge.[1]

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. *For general experience.*—Successfully completed study in an accredited resident institution above high school level may be substituted for general experience at the rate of 1 year of education for 9 months of experience, up to a maximum of 4 years of education for 3 years of experience.

2. →*For specialized experience.*—Graduate education[2] that has equipped the candidate with the knowledge and abilities to perform fully the work of the position being filled may be substituted for specialized experience as described below.←

For 1 year of specialized experience.—One full academic year of graduate education in a field of the social or behavorial sciences or in such fields as business or public administration or industrial management. (This amount and kind of education meets all the requirements for grade GS-7.)

→*For 2 years of specialized experience.*—Grade GS-9 positions are typically independent working positions rather than trainee positions. Therefore, it is important that candidates be prepared to work with the kind of independence and responsibility expected of employees at that grade. For many such positions graduate education alone will not provide such preparation. However, for some positions, especially those where employees are in training for higher level administrative officer positions, graduate education may be qualifying. The substance of the graduate coursework should demonstrate the abilities listed in the description of specialized experience. (Two full years of appropriate graduate education or a master's degree in an appriate field meets all requirements for grade GS-9.)←

3. The Superior Academic Achievement Standard in section III of part II, Instructions to Users, of this handbook, is applicable at grade GS-7.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

WRITTEN TEST

A written test is required for grades GS-5 and GS-7. It should be waived for in-service placement actions, but not for appointments outside the register.

For positions at grades GS-9 and above no written test is required.

BASIS OF RATING

For positions at the GS-5 and GS-7 levels, competitors will be rated on the basis of their written test scores.

For positions at grade GS-9 and above, ratings will be based upon an evaluation of the applicant's total experience and training, as evidenced in the application and upon any additional evidence received by the Commission.

INTERVIEW

Prior to appointment, applicants may be required to appear for an interview to give evidence of the degree to which they possess the personal characteristics needed in administrative officer positions.

---

[1] Since administrative officer positions are *essentially generalist* positions covering many areas of management, the positions ordinarily will not have requirements for extensive specialized knowledge in one particular area.

[2] →Graduate education is accepted at the rate of one full academic year, i.e., 30 semester hours (or equivalent), for one year of specialized experience.←

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; except there may be a few positions suitable for the blind. In addition, applicants must possess emotional and mental stability.

SELECTIVE PLACEMENT

Administrative officer positions vary substantially with respect to the particular kinds of management services included in the scope of their work and in the extent of knowledge and competence in particular areas. Therefore, selective placement may be appropriate in many cases. In such cases, placement may be limited to those candidates whose records show evidence of the required capabilities.

SUGGESTED GUIDE FOR APPRAISING CANDIDATES' QUALIFICATIONS FOR PARTICULAR JOBS (FOR IN-SERVICE PLACEMENT USE)

In filling administrative officer positions, it is especially important to consider the requirements of particular positions because requirements may vary a great deal from position to position. Some positions, for example, require ability in contract administration; others do not. Some positions require supervision of a sizable staff; others have very little supervisory responsibility. Some positions have public relations responsibilities; others have none. Similarly, there may be other very important differences both in kinds of abilities involved, *and* in the relative importance of these abilities in the job to be filled.

The Qualifications Analysis and Appraisal Form on page 5 is an optional tool for systematically and economically analyzing both the requirements of a particular administrative officer job, and the qualifications of particular candidates. It will help users to staff on a qualitative basis with the minimum of effort. It is a form which can be tailored to the needs of a particular organization, or of a particular staffing situation. The form calls for data which can be used to identify quickly candidates who meet minimum experience requirements for administrative qualifications for particular positions. The form also provides a basis for ranking candidates for merit promotion program purposes. Very importantly, the form provides pertinent material for consideration in final selection.

The brief instructions which follow may be printed on the reverse side of the *Qualifications Analysis and Appraisal Form* so that only one sheet is necessary. The instructions may be supplemented, and the form adapted, as needed.

SUGGESTED PROCEDURES FOR USING THE QUALIFICATIONS ANALYSIS AND APPRAISAL FORM

A. *Job analysis*

Two or more persons (including the immediate supervisor) who know the job well should determine the qualifications required. Elements known to be important in many administrative officer jobs are listed on the form as ability statements. Every item listed is not significant in every job. Other significant items, if any, pertaining to the particular job should be added. For each ability statement, the degree of importance to the job should be recorded on the form according to the "Instructions for Defining Job Requirements" near the top of the form.

B. *Evaluating candidates*

Obtain appraisals of candidates with respect to the items checked in the job analysis from as many individuals as feasible. Select individuals who know the candidate's work and behavior well.

Ask each rater to rate each checked item according to the "Qualifications Appraisal Instructions," to indicate the type of work association he has had with the candidate (e.g., immediate supervisor, colleague, etc.) and to indicate the length of that association.

C. *Screening*

Any significant number of ratings in the columns "More False Than True" and "Not True of Him" on the items that were double checked or triple checked in the job analysis should be a basis for eliminating candidates from further consideration.

D. *Ranking*

The appraisers' ratings, together with the job analysis results, may be used in a number of ways to rank candidates. As one example, the candidates could be placed in one of three groups, i.e., "highly," "fully," or "minimally" qualified.

The "highly qualified" group includes candidates who have been rated "Completely True of Him" on most items which have been either double checked or triple checked and "More True Than False" on the remainder of such items.

The "fully qualified" group includes those who have been rated "More True Than False" on most items which have been either double checked or triple checked, and "Completely True of Him" on the remainder of such items.

The "minimally qualified" group includes all others.

The ratings on the single-checked items, and the specific number of top ratings ("Completely True of Him") on double-checked and triple-checked items may be used as a basis for ranking within the first two groups.

E. *Making selections*

Selection decisions should be based on careful evaluation of *all* available information about all candidates including information from interviews, application forms, personnel folders, qualification inquiries, and this type of job analysis.

(TS 121)
December 1968
Reprinted without change May 1977 (TS 102)

QUALIFICATIONS ANALYSIS AND APPRAISAL FORM FOR ADMINISTRATIVE OFFICER (FOR IN-SERVICE PLACEMENT USE)

Name of Candidate	Position To Be Filled	Grade

INSTRUCTIONS FOR DEFINING JOB REQUIREMENTS: Check column A as follows: √—for an ability that is desirable but not critical; √√—if the ability is essential for acceptable perfor nance; √√√—where the ability is essential to acceptable performance and a high degree of it is especially important for top quality perfor nance.

QUALIFICATIONS APPRAISAL INSTRUCTIONS: From your personal knowledge give your evaluation on each checked item by marking the 3 rating in columns C thru G which best expresses your appraisal of the candidate. Base your evaluations on firsthand knowledge only. If your knowledge of this candidate's job behavior on any marked element was heard from someone else, mark that element under column G, "Don't Know."

Degree of importance of element to job (*Indicate √; √√; or √√√*) (A)	Ability statements representing job elements (B)	Completely true of him (C)	More true than false (D)	More false than true (E)	Not true of him (F)	Don't know (G)
	1. Shows a good understanding of management principles practices, methods and techniques.					
	2. Establishes and maintains effective personal relationships in a work situation.					
	3. Makes clear written presentations.					
	4. Makes clear oral presentations.					
	5. Shows ability to interpret complex written material. 6. Effectively analyzes work problems having an administrative aspect.					
	7. Skillfully plans and organizes work in situations where numerous diverse demands are involved.					
	8. Shows ability to expedite work where numerous "short-range" tasks are involved.					
	9. Adjusts well to changes in policies and procedures.					
	10. Is knowledgeable regarding organization and operating programs.					
	11. Shows ability to direct and develop other workers.					
	12. Is knowledgeable and competent in matters pertaining to; a. Funds management					
	b. Personnel management					
	c. Management analysis					
	d. Procurement					
	e. Contract administration					
	f. Property management					
	g. Space management					
	h. Data processing					
	i. Public relations					
	j. Security administrtion					
	k. Safety administration					
	l. (Others)					

Relationship with candidate	From	To	Your present position or title	
Employer or superior				
Fellow employee				
Other (Specify)			Signature	Date

APPRAISING CANDIDATES FOR ADMINISTRATIVE ASSISTANT JOBS

In filling administrative assistant trainee jobs noncompetitively, it is especially important to consider both the present knowledges and abilities of a candidate, and his potential for developing the qualifications needed for success in administrative officer jobs. One way of accomplishing this objective is to adapt the *Qualifications Analysis and Appraisal Form* for administrative officers (or another appropriate tool) as a means of measuring a candidate's abilities and potential. The definition of specialized experience shows the types of abilities and knowledges that are important.

(TS 121)
December 1968
Reprinted without change May 1977 (TS 162)

Support Services Administration Series **GS–342 (p. 1)**

Support Services Supervisor
Support Services Specialist
GS–1/15

DESCRIPTION OF WORK

Support services positions are responsible for supervising, directing, planning, and coordinating a variety of service functions that are principally work-supporting, that is, those functions without which the operations of an organization or services to the public would be impaired, curtailed, or stopped. Such service functions include communications, procurement of administrative supplies and equipment, printing, reproduction, property management, space management, records management, mail service, facilities and equipment maintenance, and transportation.

Most positions in this series are supervisory in nature. However, the series includes some nonsupervisory positions involving the performance, planning, and advisory work in support service program areas for which no more specialized series exists.

EXPERIENCE REQUIREMENTS

Except for the substitution of education provided for below, applicants for these positions must have had the kind and amount of experience shown in the following table, and of the nature and quality described in the statements that follows:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-5	3	0	3
GS-6	3	½	3½
GS-7	3	1	4
GS-8	3	1½	4½
GS-9	3	2	5
GS-10	3	2½	5½
GS-11/15	3	3	6

General experience

General experience is progressively responsible administrative, professional, technical, investigative, or similar work that involved dealing with others in person-to-person work situations, in obtaining and providing a variety of services to an organization, or other similar work that demonstrates judgment and skills to perform at the level of work for which application is made.

Specialized experience

Specialized experience is progressively responsible administrative, professional, technical, investigative, or other similar work that demonstrates:

1. Knowledge of the methods and procedures for providing or performing a variety of functions and services in support of the operations of an organization, and the knowledge of the relationships of these functions and services to other administrative mangement functions;
2. Understanding of program planning and of organizational requirements regarding the control of funds allocations that is sufficient to plan, organize, and control work involving diverse activities;
3. Ability to gain cooperation and coordinate the work of others;
4. Skill in oral and written communications; and
5. Judgment and analytical ability of a level commensurate with the demands of the position to be filled.

Examples of qualifying specialized experience

1. Supervisory, staff, or technical experience as a management analyst, management technician, or the equivalent, when such experience included study, analysis, or evaluation leading to the development or improvement of managerial or administrative policies, practices, and procedures.
2. Supervisory, staff, or technical experience in other administrative occupations such as administrative assistant or officer work, budget administration, program analysis, or other similar work that provided knowledge of an organization, the functions it performs, and the ways in which support services can facilitate the work of the organization.

3. Supervisory, staff, or technical experience in one or more support services functions, provided the experience clearly demonstrates a basic understanding of other service functions and their relationship to the overall support services program.
4. Experience as an Office Manager, Chief of Office Services, Chief of Administrative Services, or equivalent positions that included responsibility for directing a variety of support services such as typing, stenography, duplication, filing mail processing, purchase of supplies and equipment, etc.
5. Experience as a secretary when the position required monitoring and coordinating administrative and processing work of subordinate elements through a system of internal procedures, internal controls, production or progress reporting, etc., and administrative and clerical services to insure the efficient operation of an organization composed of several elements.
6. Military experience in an administrative specialty such as Administrative Specialist (Army), Yeoman (Navy), Administrative Man (Marine Corps), or Administrative Specialist (Air Force), provided such experience included responsibility for directing a variety of support functions similar to those listed under Description of Work.

Quality of experience

The required length of experience alone cannot be accepted as proof of qualification for a position. Applicants must demonstrate through their accomplishments that their overall experience has been of a scope, quality, and degree of responsibility to give them the ability to perform the duties of the position.

For grades GS–11 and below, at least 6 months of the required specialized experience must have been at a level of difficulty and responsibility comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required specialized experience must have been at a level of difficulty and responsibility comparable to the next lower grade in the Federal service.

Substitution of education for experience

To be acceptable as substitution for general or specialized experience, the level and quality of the education and/or training must have equipped the applicant to perform duties at the grade level of the position to be filled.

For general experience: Study successfully completed in a resident school or institution above the high school level may be substituted for required general experience at the rate of 1 year of education for 9 months of experience up to a maximum of 4 years of education for 3 years of experience.

For specialized experience: The completion of 30 semester hours of graduate education with major study in (1) public administration, business administration, industrial engineering, industrial management, or (2) other fields, provided the graduate work included specialization in administrative or management activities, may be substituted for 1 year of specialized experience. (This amount and kind of education meets all the requirements for grade GS–7.)

Basis of rating

No written test is required. Applicants for all grades will be rated on the basis of an evaluation and appraisal of experience, education and training as these are reflected in applications and results of qualification inquiries.

Physical requirements

Applicants must be physically and mentally able to safely and efficiently perform the essential functions of the position. Depending on the essential duties of a specific position, usable vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform. Reasonable accommodation may include, but is not limited to: job

modification, provision of assistive devices, job restructuring, and/or provision of leaders for blind persons and interpreters for deaf individuals.

Qualifications inquiries

For all positions, confidential inquiries, including contacts with applicants' present and former supervisors and associates, may be made to obtain additional information concerning an applicant's statements, personal qualifications, personal traits and character, and suitability for the position. The inquiries will be conducted through confidential personal interviews or qualifications questionnaires. For Supervisory positions use the form suggested in the qualification standard for "Supervisory positions in General Schedule Occupations," in Part II of Handbook X–118.

GUIDE FOR EVALUATION OF CANDIDATES

Guidelines for appraising employees' qualifications for promotion are discussed in FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement. Experience, education, training, and personal characteristics should be evaluated in terms of how they will enable the candidate to perform the duties of the specific position to be filled.

Supervisory positions

For supervisory positions use the qualification standard for "Supervisory positions in General Schedule Occupations," in Part III of this Handbook in conjunction with critieria contained in this Standard.

Nonsupervisory positions

For nonsupervisory positions the criteria in this standard may also be used in conjunction with the qualification standard for "Supervisory positions in General Schedule Occupation." In the case of nonsupervisory positions evaluation should be in terms of supervisory potential.

Selective factors

Positions in the support services administration field vary in functions, organizational settings, and types of experience required. Requests for certification based on selective placement needs should include a copy of the current position description and data derived from qualification analysis of the type suggested in Parts V and VI of the supervisory qualification standard in Handbook X–118. The analysis may make use of materials regarding the nature of services, organizational environment, and level of responsibility described in the classification standard for this series.

MANAGEMENT ANALYSIS SERIES [1]

All positions in grades GS–5 through GS–15

Management Analyst

Supervisory Management Analyst

Management Analysis Officer

DESCRIPTION OF WORK

Management analysts provide advice and service to management in such areas as planning; policy development; work methods and procedures; manpower utilization; organizational structures; distribution of assignments; delegation of authority; information management; or similar areas with the objective of improving managerial effectiveness. The paramount qualifications required are a high order of analytical ability and a practical and theoretical knowledge of the functions, processes, and principles of management.

EXPERIENCE AND EDUCATION

Table of Minimum Requirements

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-5	3	0	3
GS-7	3	1	4
GS-9	3	2	5
GS-11/15	3	3	6

General experience or education

For positions at grades GS–5 and above, applicants must have a background of one of the following:

A. A full 4–year course in an accredited college or university leading to a bachelor's degree;

B. Three years of experience in administrative, professional, investigative, technical or other responsible work which demonstrated possession of the abilities and aptitudes required to perform management analysis work;

C. Any time equivalent combination of experience and education defined in A. and B. above. In combining education with experience, an academic year of study which comprised 30 semester hours or 45 quarter hours is considered equivalent to 9 months of experience.

Specialized experience

This is experience which has provided the opportunity to acquire and the need to apply an extensive body of practical and theoretical knowledge of the principles, functions and processes of management. In addition to management analysis experience, the following types of experience may have resulted in the development of management analysis knowledges, skills, and abilities:

A. Managing, administering, or directing an organizational segment and its work program with responsibility for planning, organizing, staffing, directing, coordinating, reporting and budgeting;

B. Analyzing and evaluating the effectiveness of management controls, channels of communication, operating procedures, organization, flow of work, etc., for example, as an internal or operational auditor;

C. Performing analytical duties in any of such occupations as budget planning, industrial engineering, production planning, program systems or operations analysis, etc., when a principal emphasis of the work was to improve management effectiveness rather than to resolve only technical problems in the field.

D. Performing job evaluation or position classification when the work included responsibility for observing and influencing management practices relating to organization of work, manpower utilization, establishment of positions, and similar matters through guiding management efforts to manage and control positions in line with sound, economical administration.

E. Performing *analytical* work in any of the areas of information management (also

[1] Cancels and supersedes the standard for this series that was issued in December 1968 and revised in October 1970.

called records management, paperwork management, documentation management, etc.).

Note: Although this *analytical* work is now classified to this series and therefore qualifying as specialized experience, it is specifically mentioned here because it has been classified under many series codes in the past.

SUBSTITUTION OF EDUCATION

Full-time [2] graduate education may be substituted on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

A. *For 1 year of specialized experience*—One full academic year of graduate education in business administration, industrial management, industrial engineering, industrial psychology, public administration, political science, government, or other directly related fields. (This amount and kind of education meets all the requirements for grade GS-7.)

B. *For 2 years of specialized experience*—Completion of all requirements for a master's or equivalent degree, or 2 full academic years of graduate education, which is in the fields described in paragraph A. above. (This amount and kind of education meets all the requirements for grade GS-9.)

The Superior Academic Achievement Standard in section III of part II of this handbook is applicable at grade GS-7.

Quality of experience

All applicants, except those who qualify on the basis of education, must have had, when applying for positions at grades GS-11 and below, at least 6 months of experience at a level equivalent to the next lower grade in the Federal service, or 1 year equivalent to the second lower grade. Applicants for grades GS-12 and above must have had at least 1 year of experience equivalent to the next lower grade.

[2] Part-time graduate education is also acceptable at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

WRITTEN TEST

Applicants for competitive appointment to grades GS-5 and GS-7 must pass an appropriate written test. For inservice placement actions, the test is *not* required and, therefore, may *not* be used on a pass-fail basis. In addition, the test may *not* be used in evaluating or ranking eligible employees unless the test is approved for this purpose by the Civil Service Commission. (See section A-3, appendix A, FPM Supplement 335-1.)

SELECTIVE PLACEMENT

Management analysis positions vary in organizational setting, function, and operational conditions. Agencies are encouraged to use selective placement of candidates to assure an optimum match between the capabilities of candidates and the exact requirements of positions to be filled.

BASIS OF RATING

Applicants for grades GS-5 and GS-7 will be rated on the basis of their written test scores.

Candidates for positions at grades GS-9 and above will be rated on the basis of the quality and extent of their total experience, education, and training. Ratings will be based on statements in the application forms and any additional information received.

PERSONAL CHARACTERISTICS

Competitors must demonstrate that they possess the personal characteristics which are

needed for performance of management analysis work including, for example, skill in oral expression, ability to explain and defend work products, effectiveness in personal relations, interest in management, objectivity, poise, etc. Candidates may be evaluated on these elements through the use of interviews. Applicants who do not demonstrate possession of the required characteristics to an appropriate degree will not be appointed.

GUIDE FOR INSERVICE PLACEMENT

In order to provide a means whereby an applicant's experience and abilities can be systematically evaluated and made a matter of record, the following evaluation procedure covering many of the characteristics which must be possessed by management analysts has been provided.

The characteristics and skills required by a management analyst vary to some degree with the nature of the specific position to be filled. Therefore, some of the characteristics and skills in the list which follows will be of greater importance in some positions than others.

Skill in oral and written expression: The ability to communicate both orally and in writing are important. This factor provides for consideration of the extent to which applicants are able to demonstrate that they can organize and develop clear and meaningful written communications such as reports and studies and can demonstrate the ability to present orally and discuss complex matters in a clear and convincing manner.

Ability to defend and sell work products: This measures the extent to which applicants can gain acceptance of their work products by their ability to work with others, ability to present ideas in the right way, the ability to persuade others, and their understanding of the need for compromise.

Creativity in solving management problems: This factor measures the degree to which applicants are able to visualize needed changes and improvements in the management process and are capable of originating new and different solutions to problems.

Effectiveness in personal relations with all levels of responsibility: This factor deals with the relative ability of the applicant to understand the roles and responsibilities of various levels of the management process and to gauge his relationships accordingly, taking into account the variety of interrelationships, motivations and goals of the members of the organization served; and his awareness of his staff role and willingness to function in such capacity.

Interest in the management process: This considers the extent to which the applicant has a deep interest in the obligations and challenges of the management process; a continually increasing comprehension and knowledge of the theoretical and practical aspects of the literature on the management process; and a desire to contribute to the advancement of such knowledge of management and the techniques and principles which underlie the process.

Analysis of complex problems: The extent to which the applicant demonstrates that he can comprehend, interrelate, evaluate facts, distinguish between causes and effects, understand fundamental problems and is able to develop solutions logically and systematically.

Practical and theoretical knowledge of management functions, theories, and techniques: This factor is used to consider the extent to which the applicant demonstrates that he has a specialized knowledge of the management process. This knowledge must be sufficiently broad and must be used with a sufficient degree of competence to permit him to resolve a management problem.

Understanding the role of management analysis in helping the organization achieve its goals: This factor is used to evaluate the degree to which the applicant understands the goals of the organization served and the means whereby these goals are reached, and possesses an appreciation of the role of management analysis in achieving these goals.

Objectivity: The degree to which the applicant demonstrates the capacity to analyze and

evaluate problems in the light of principles and practices rather than feelings and attitudes.

The chart which follows provides a means whereby the personal qualities outlined above can be systematically treated and recorded. The evaluation of personal characteristics should normally be performed by one or more persons who fully understand the management analysis occupation and also by one or more representatives of the personnel office who are skilled in appraising the abilities of individuals.

The thoughtful and thorough evaluation of the applicant on the basis of the factors in this chart is an important aspect of the application of this standard. Also highly important are the experience and education requirements which must also be met. While the chart is designed to facilitate the appraisal of applicants in terms of the experience and education requirements stated above, the chart does not, of itself, constitute the standard.

(INSERVICE PLACEMENT SUMMARY EVALUATION GUIDE) MANAGEMENT ANALYST GS-343-5/15 SUMMARY EVALUATION OF APPLICANT'S PERSONAL CHARACTERISTICS

Personal characteristics to be evaluated	Relative importance in job to be filed	Degree			How measured	Reason for degree assigned	Recommended measuring devices (checkmark those used)
		Not demonstrated	Acceptable for position	Above average for position	E.g., written test interview, supervisory appraisal, etc.		
Ability to express self orally and in writing							Group oral, general interview
Ability to defend and sell products							Supervisory appraisal, group oral interview
Creativity in solving management problems							Supervisory appraisal, group oral, work product appraisal
Effectiveness in personal relationships with all levels of responsibility							Group oral, supervisory appraisal
Interest in the management process							General interview, reference inquiry
Ability to analyse complex problems							Group oral, work product appraisal
Knowledge of management practices, theories, and techniques							Review of work history, work product appraisal, general interview, reference inquiry
Understanding role of management analysis in helping the organization achieve its goals							Supervisory appraisal, work product appraisal, general interview
Objectivity							Group oral, supervisory appraisal, reference inquiry, general interview
Other as required by position							

USE OF THE SUMMARY

1. A summary sheet should be completed for each applicant. The summary is intended to be used as a guide to employing officials to aid in the evaluation and selection process. No criteria are provided for ranking applicants; however, agencies may utilize this summary sheet for ranking applicants, if desired.

2. For higher level positions (e.g., GS–13 and above), it is suggested that an extensive investigation of past experience be conducted as is feasible.

3. The format of this guide need not be followed but the information required should be made a matter of record in the personnel office.

4. Whenever practical, the specific experience which supports the evaluation of each factor should be recorded.

5. The measuring devices recommended in the chart above are not the only means by which personal characteristics may be evaluated. Those which are listed are most commonly used in the Federal service. However, there are other means of assessing personal characteristics which can be used when circumstances warrant. For example, it may be feasible to use employee self evaluations or appraisals by associates or fellow employees. In some cases, evaluation might be based in part on such techniques as having the applicant submit written solutions to specific problems of the types usually encountered by management analysts. As advances are made in the techniques of appraising personal characteristics of applicants for positions, such techniques should be used to the extent they may be applied to the management analysis occupation. In addition, agencies are encouraged to experiment in developing and improving methods of applicant appraisal, and in testing the validity of such techniques.

EVALUATING EXPERIENCE GAINED IN THE MANAGEMENT CLERICAL AND ASSISTANCE SERIES, GS–344

Experience as a management assistant (formerly technician) in the Federal service may be accepted as qualifying for the management analysis occupation when *all* of the following conditions are met:

A. The employee is being considered for reassignment from a management assistant position to a very similar management analysis position in the same grade;

B. The employee meets the basic qualification requirements for the management analysis position, i.e., the years of acceptable experience or substitutable education;

C. The duties, degree of responsibility, and subject matter of his management assistant position are sufficiently similar to the management analysis position to demonstrate clearly that the employee has the necessary background to perform satisfactorily the duties of the management analysis position to be filled; and

D. A determination has been made under the *Guide for Inservice Placement* above that the employee has the abilities, interest and capabilities to perform successfully the work of a management analysis position.

After lateral reassignment made under the above conditions the reassigned employee will be expected to demonstrate satisfactory performance in the management analysis position for a reasonable length of time before he is promoted to a higher grade management analysis position in accordance with the standard for the higher grade.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

MANAGEMENT CLERICAL AND ASSISTANCE SERIES

Management Clerk GS-1/3[1]

Supervisory Management Clerk GS-3/7

Management Assistant GS-4/11

Supervisory Management Assistant GS-5/13

DESCRIPTION OF WORK

This occupation includes positions that involve performance of clerical and technical work in support of such management analysis functions as work measurement; records, paperwork, documentation or information management; workflow, time and motion studies; development of organizational and workflow charts; examination of work processes and data; and similar functions. These positions require primarily a practical knowledge of the purpose, operation, methodology, techniques or guidelines characteristic of specific management functions rather than a thorough knowledge of the functions, processes and principles of management.

EXPERIENCE REQUIREMENTS

Except for the substitution of education provided for below, applicants must have had the kind and amount of experience shown in the following table, and of the nature described in the statements immediately following:

Grade	*General experience (years)*	*Specialized experience (years)*	*Total experience (years)*
GS-4	2	0	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5
GS-8 and above	2	4	6

General experience

This is progressively responsible clerical experience, of which the following are examples:

—Applying a body of rules, regulations, decisions, or statutes, e.g., as in payroll work, voucher examining or bookkeeping.

—Extracting data or information from various sources, e.g., reports, for such purposes as maintaining records, consolidating or preparing reports.

—Composing correspondence, narrative reports or summaries which require selecting or paraphrasing stock or standard letters, paragraphs or forms.

—Meeting and dealing with other people for purposes such as advising them of benefits, privileges or obligations under insurance, retirement, educational or similar plans or systems.

Specialized experience

This is progressively responsible experience which provided knowledges and abilities relevant to the work for which application is made; for example:

—Reviewing work measurement reports to determine if valid units have been reported.

—Consolidating reports; studying data; explaining reporting procedures; and making suggestions for change.

—Making time standard studies using such methods as work sampling and standards allowances. Following up and recommending changes in standards.

—Studying forms to determine need for revision, adaptation, combination or elimination. Reviewing forms to determine compliance with established standards. Determining appropriate stock levels and methods of reproduction and distribution of forms.

—Studying reports and determining if established standards are met, the need for reports, and the cost of preparation.

—Studying filing systems and resolving problems caused by space layout, equipment usage and the methods and procedures followed by operating personnel.

—Advising on communications concerning workflow, types of controls, volume and

[1] The qualification standard for Clerk GS-300-1/3 is to be used for filling management clerk positions in grades below GS-4.

complexity, processing steps, and extent of rerouting.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for Supervisory Positions in General Schedule Occupations, in part III of this handbook.

QUALITY OF EXPERIENCE

For positions at any grade, the required amount of experience is not in itself proof of qualification. The applicant's record must show that he has ability to perform the duties of the position.

→In addition, for GS-4 positions, at least six months of the required experience must have been at a level of difficulty comparable to grade GS-3 in the Federal service. For GS-5 positions, at least one year of the required specialized experience must have been comparable to grade GS-4. At GS-6 through GS-11, at least one year of the required specialized experience must have been comparable to the next lower grade, or two years of the required specialized experience must have been comparable to the second lower grade. For positions at GS-12 and above, at least one year of specialized experience must be comparable to the next lower grade.←

SUBSTITUTION OF EDUCATION

—*For grade GS-4:* Two years of post-high school education may be substituted in full for the GS-4 level requirements.

—*For grade GS-5:* A full 4-year course in a college or university may be substituted in full for the GS-5 requirements.

No educational substitutions may be made for more than two years of general and one year of specialized experience. Education cannot be substituted for any of the required supervisory experience.

WRITTEN TEST

A written test of abilities necessary to learn and perform the duties of these positions is required for grade GS-4.

For inservice placement actions, the test is *not* required and, therefore, may *not* be used on a pass-fail basis. In addition, the test may *not* be used in evaluating or ranking eligible employees unless the test is approved for this purpose by the Civil Service Commission. (See section A-3, appendix A, *FPM Supplement 335-1*).

PERSONAL CHARACTERISTICS

Many of these positions require significant contact with others outside the immediate employing office. In those situations, the work requires tact, patience, courtesy, an understandable speaking voice, and ability to make effective public contacts. In filling such positions appointing officers should assure themselves by reference checks, personal interviews or other appropriate means that applicants possess these qualities.

BASIS OF RATING

Competitors for all positions are rated on a scale of 100. Rankings are made:

1. *For competitive appointment at GS-4,* on the basis of the written test.
2. *For competitive appointments above GS-4 and for inservice placement at all grades,* on the basis of the extent and quality of experience and training relevant to the duties of the position.

Information used in rating will be obtained from application forms, reference checks, and the like.

INSERVICE PLACEMENT

Waiver of specialized experience

In inservice placement, the specialized experience requirements may be waived in the following situations:

1. For actions involving lateral reassignment when:
   a. The candidate has had experience that has provided a general familiarity with the work of the position for which he is being considered; and
   b. A review of the candidate's experience and performance discloses possession of

the necessary skills and abilities; and evidences potential for successful performance of the work.

2. For promotion actions where it is clear that:
   a. Despite the lack of directly related specialized experience, the candidate's background provides positive evidence that he possesses to a superior degree the essential skills and abilities needed for the position; and
   b. The candidate has had experience that provided a general familiarity with the work of the position for which he is being considered; and
   c. The overall evaluation of the candidate's background provides strong evidence that he can successfully perform the higher grade work without prolonged training.

Suggestions for evaluating candidates

The normal avenue of entry into positions in this occupation is through inservice placement actions, by transfer, reassignment, or promotion of those already in Federal service. In evaluating such applicants, it is suggested that information be obtained from former supervisors and peers of the applicant to elicit information concerning personal characteristics, demonstrated abilities, type of work experience, and past responsibilities.

Inquiries should develop the kind and extent of knowledges acquired and used in former work situations, the degree of freedom from supervision, and the degree of public contact (i.e., contacts outside the immediate employing office) involved. Particular attention should be given to specific personal characteristics and interests needed by management assistants. Among those characteristics and interests are:

a. A high level of ability to work accurately;
b. Ability and interest in performing work which requires meticulous attention to detail;
c. Ability required to relate assigned work to the objectives of the program served; and
d. Ability to gain cooperation of others often under circumstances where regulatory or control aspects of the position tend to foster resentment or reluctance to cooperate.

In ranking candidates, other things being equal, the greatest credit should be given to those with the greatest amount of experience directly related to the work of the position to be filled, and those who had the greatest responsibility and freedom from direct supervision. Extra credit may be given to those who possess experience in a broad range of work. For example, candidates may have not only directly related experience but may have additional experience in another function. For such candidates extra credit may be given if the additional experience will benefit in the position, and if it gives evidence of greater potential for development.

PHYSICAL REQUIREMENTS

See Part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

PROGRAM ANALYSIS SERIES **GS–345**
(p. 1)

Program Analyst GS–9/13

Program Analysis Officer GS–11/15

DESCRIPTION OF WORK

Program Analysts analyze and evaluate the actual or potential effectiveness of current or projected operating programs in achieving their objectives. This includes such duties as analyzing the objectives, policies, work operations and progress, resources estimates and utilization, intra- and inter-program balances, and other related aspects of operating programs; identifying actual or potential problem areas, trends, significant program accomplishments, merit and deficiency situations, areas of imbalance, and/or similar factors in the programs involved; evaluating alternative or corrective actions in terms of effect on the program under consideration, on interrelated programs, and on overall utilization of resources; developing and recommending program objectives and operations and resources utilization for new programs; developing and recommending changes in program objectives and operations and adjustments in resources utilization to resolve problems, provide balanced program operations, and achieve maximum effectiveness in established programs; and presenting recommendations and conclusions based on analysis and evaluation to operating or management officials for their use in insuring efficiency, economy, and balance in the development and execution of operating programs.

Program Analysis Officers plan and conduct an overall program analysis program for one or more operating programs and also either perform, or direct the performance of, program analysis work.

EXPERIENCE REQUIREMENTS

Except for the substitution of education for experience as indicated below, applicants must have had progressively responsible experience of the type and in the amount shown in the following table, and as described in the statements immediately following:

Minimum Requirements

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS 9	3	2	5
GS 11/15	3	3	6

1. *General experience.*—Experience in administrative, professional, technical, investigative, or other responsible nonclerical work.

2. *Specialized experience.*—Progressively responsible experience in work requiring the making of analyses, evaluations, or other substantive determinations with regard to current or projected operating programs. Experience of this kind is normally acquired in positions concerned with the performance of, or with providing nonclerical assistance in, operating, managerial, analytical, planning, or advisory work involving program interrelationships or interprogram integration. Examples of some, but not all, of the kinds of work in which experience of the kind required may be gained are:

a. directing or performing line operations work of any kind provided such work requires a high degree of analytical ability and extensive knowledge and understanding of the substantive nature of operating programs and the interrelationships among operating programs;
b. management analysis, advisory, research, or survey work when such work involves analysis, consideration, or evaluation of the substantive aspects of and the interrelationships among operating programs;
c. statistical survey and analysis work that is concerned with various program areas and includes the analysis of programmatic data and the establishment of program relationships;
d. budget work that includes analysis, evaluation, and integration of the relationships

among operating programs or program areas;

e. financial management, accounting, or other fiscal analysis work that involves such functions as (1) the preparation, analysis, and interpretation of statements of financial condition as a basis for resolving the management problems of an agency; (2) the design, installation, evaluation, and/or revision of accounting systems requiring analysis of the total agency program to insure integration of all program elements in the system; (3) management of a total agency accounting program, or of a portion of an accounting program, when this includes coordination of or with agency-wide accounting operations; and (4) auditing a function, program, or agency when the work involves analysis of various programs;

f. personnel management work when such duties require collaborating with operating officials on organization and management problems and consideration of the total program area on a continuing or rotating basis.

For positions that include responsibility for directing program analysis programs, applicants must have had experience in planning and directing a program providing staff advice and assistance. This requirement is considered to be met for the first level of such positions when there is affirmative evidence of the necessary supervisory or administrative aptitudes and abilities. Such evidence may be in the form of success in regular or special assignments that involved supervisory or administrative problems, the performance of assignments in a manner that clearly demonstrates awareness of managerial problems and ability to solve them, supervisory evaluation of the applicant's managerial capabilities, or in other similar form.

3. *Substitution of experience.*—Excess specialized experience may be substituted for required general experience.

4. *Quality of experience.*—All applicants must have had, for positions at GS-11 and below, at least 6 months of the required specialized experience at a level of difficulty and responsibility comparable to that of the next lower grade, or 1 year of such experience at a level comparable to the second lower grade in the Federal service. For GS-12 and above, at least 1 year of the required specialized experience must have been at a level comparable to the next lower grade in the Federal service.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. ➔ *For general experience.*—Successfully completed study in an accredited resident institution above high school may be substituted for general experience at the rate of one year of education for nine months of experience up to a maximum of four years of education for three years of experience. ←

2. ➔ *For specialized experience.*—Graduate education [1] that has equipped the candidate with the knowledges and abilities to perform fully the work of the position being filled may be substituted for specialized experience. Grades GS-9 positions are typically independent working positions rather than trainee positions. Therefore, it is important that candidates be prepared to work with the kind of independence and responsibility expected of employees at that grade. By definition, positions in this occupation require ability to analyze the effectiveness of programs and operations and project future program needs. Graduate coursework should be evaluated closely to determine that courses demonstrate such ability. For example, a course of study which included such subject matter as quantitative analysis, research methodology, inferential statistics, policy analysis, planning and evaluation techniques, would demonstrate knowledge of analytical techniques. (Two full years of graduate education or a master's degree in an appropriate field meets all requirements for grades GS-9). ←

[1] ➔ Graduate education is accepted at the rate of one full academic year, i.e., 30 semester hours (or equivalent), for one year of specialized experience. ←

PROGRAM ANALYSIS SERIES

SELECTIVE CERTIFICATION

→Knowledge of the broad program area of concern in the particular job. e.g., urban planning, public health, communications systems, missile systems, social services, law enforcement, which may be demonstrated by experience or education, may be considered a selective factor. ←

BASIS OF RATING

No written test is required. Applicants for these positions will be rated on the basis of the applicants' total experience and training.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

For positions in the Logistics Management occupation, GS–346, Grades GS–5/15
Logistics Management Specialist
Supervisory Logistics Management Specialist

DESCRIPTION OF WORK

Logistics Management Specialists typically perform staff work in planning and coordinating logistical support activities to provide the money, manpower, material, facilities, and services needed to support a specified mission at the time and place they are needed. The Logistics Management Specialist identifies the activities involved and integrates the efforts of each activity into a comprehensive logistics plan. Normally the Logistics Management Specialist also monitors progress toward meeting the plan, initiates expediting actions to avoid delays, and adjusts plans and schedules as needed to assure that customer needs are met efficiently.

Supervisory Logistics Management Specialists supervise staff work in planning and coordinating logistical support activities and plan, organize, direct, coordinate, and control logistics management programs.

EXPERIENCE, EDUCATION, AND RELATED REQUIREMENTS

Except for the substitution of education provided, candidates must have had general and specialized experience of the length specified in the table below, and of the nature described in the statements that follow:

Grade	*General experience (years)*	*Specialized experience (years)*	*Total experience (years)*
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11/15	3	3	6

General experience is experience in administrative, professional, investigative, technical, or other responsible work that demonstrates judgment, analytical ability, and skill in dealing with others in person-to-person work relationships.

Specialized experience is progressively responsible administrative, professional, technical, or analytical experience that demonstrates:

(1) Understanding of program planning, funds control, data collection and analysis, and similar planning, analysis and control techniques;
(2) Broad knowledge of the organization and functions of a variety of logistical support activities and, for some positions, extensive specialized knowledges of several specified functions;
(3) Ability to plan and organize work involving diverse activities;
(4) Ability to gain cooperation and coordinate the work of others;
(5) Skill in oral and written presentations; and
(6) Judgment and analytical ability of a level commensurate with the demands of the position to be filled.

Specialized experience may be obtained through:

(1) Experience in a staff analysis or program planning position which has involved considerable emphasis on studies and plans regarding logistics programs; *or*
(2) Supervisory, technical, or staff responsibilities in one of the functional areas of logistics, or any combination of the functional areas, *provided* the experience clearly demonstrates that the candidate understands the relationship of his specialization to the total logistics operation, and the candidate's ability to integrate his specialized functional area with associated logistics activities.

Specialized experience must be related to the position to be filled. The experience must have been sufficiently responsible to show clearly the candidate's ability to perform the duties of the position at the grade for which he is being considered.

SUPERVISORY AND MANAGERIAL POSITIONS

For supervisory and managerial positions, see the qualification standard for Supervisory Posi-

tions in General Schedule Occupations, in part III of this handbook.

SELECTIVE PLACEMENT

Some positions require specialized experience in specific combinations of logistical support functions (e.g. procurement and transportation, or maintenance and supply). Consideration for these positions may be limited to those candidates whose total background includes experience in each specified function or, if that is not feasible, to those who have specialized experience in at least one of the specified functions.

QUALITY OF EXPERIENCE

For grades GS–11 and below, at least six months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or one year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least one year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

PERSONAL CHARACTERISTICS

Most of the positions involve extensive personal contact work. Applicants must demonstrate ability to deal courteously and effectively with people, to exercise tact, to express ideas orally. Applicants who do not demonstrate possession of the required characteristics to an appropriate degree will not be appointed to such positions.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. Study successfully completed in a residence college or university may be substituted for required general experience at the rate of one year of education for nine months of experience, provided such study included at least six semester hours (or equivalent) per year in such courses as business logistics, logistics management, business administration, commerce, marketing, industrial management, engineering, economics, accounting, business or commercial law, statistics or closely related fields. (Four years of such study, or completion of all requirements for a bachelor's degree, meets all the requirements for grade GS–5.)
2. Full-time [1] graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.
   a. *For one year of specialized experience*
   One full academic year of graduate education in such fields as business logistics, distribution or logistics management, business administration, industrial management, traffic management, marketing, or other directly related fields. (This amount and kind of education meets all the requirements for grade GS–7.)
   b. *For two years of specialized experience*
   Completion of all requirements for a master's or an equivalent degree, or two full academic years of graduate education in business logistics, distribution or logistics management, or other directly related fields. (This amount and kind of education meets all the requirements for grade GS–9.)
3. The Superior Academic Achievement Standard in section III of Part II, Instructions to Users, of this handbook is applicable at grade GS–7.

WRITTEN TESTS

For competitive appointment, a written test is required at grades GS–5 and GS–7, but not at higher levels. For inservice placement actions at GS–5 and GS–7, the test may be used, in combination with other evaluation methods, as one element in ranking employees for reassignment into or promotion within this occupation. (See *FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement*, especially Appendix A, Guidelines for Use of

[1] Part-time graduate education is also accepted at the rate of 30 semester hours (or equivalent) for one year of specialized experience.

Written Tests.) The written test may not be waived for appointments outside the register.

BASIS OF RATING

1. *For competitive appointments at grades GS-5 through GS-7:*
Candidates are rated on the basis of the written test.
2. *For competitive appointments above grade GS-7, or for inservice placement at all grade levels:* Candidates are rated on the basis of an evaluation of the extent and quality of their experience, training, and education that is relevant to the duties of the position.

Information used in rating will be obtained from application forms and supporting papers, from former employers and associates, and from other sources.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

GUIDES FOR EVALUATING CANDIDATES

Candidates should be evaluated on the basis of their total qualifications. In evaluating experience, it is necessary to look beyond the occupational code or title assigned to prior jobs to determine whether the experience is directly related to the position being filled. In general, in determining the grade level for which a candidate is qualified on the basis of experience, education, and training, and in evaluating its quality, the following elements should be considered:

(1) *Pertinence of the candidate's experience and training to the type of position being filled*
Positions in the logistics occupation require broad knowledges of staff planning and control techniques and of the organization and functions of a variety of logistical support activities. It is important to identify the specific knowledges required in the position to be filled and to determine the degree of the candidate's understanding of each area.

(2) *Ability to plan and coordinate work involving diverse activities*
Positions in this occupation require the ability to correlate diverse factors and data and to evaluate and incorporate this data into the proper segments of the overall logistics plan. In evaluating this factor, consider the extent to which the candidate has demonstrated ability to work effectively with people of varied backgrounds and interest; skill in identifying and resolving conflicting interests; ability to comprehend, interrelate, and evaluate varied factors; ability to identify basic issues and to distinguish between cause and effect; and skill in motivating others to exert extra effort, as needed to meet requirements.

(3) *Ability to communicate effectively through oral and written presentations*
Consider the candidate's demonstrated personal contact ability, e.g., to explain, interpret, persuade, and gain acceptance of objectives; and demonstrated ability to prepare reports, correspondence, and other written material.

(4) *For managerial positions, knowledge of and competence in logistics management activities*
Consider the extent to which the candidate was responsible for managerial responsibilities, such as developing and recommending policy; interpreting and applying overall policy; organizing and carrying out specific programs; evaluating and recommending significant changes in organizational structures and methods of operation; or other managerial activities directly related to the position to be filled.

Microform Equipment Operator GS–1/4
Mail Processing Equipment Operator GS–1/4
Peripheral Equipment Operator GS–1/4
Duplication Equipment Operator GS–1/4
Copier/Duplicating Equipment Operator GS–1/3

DESCRIPTION OF WORK

Equipment operators set up, operate, adjust, and monitor the operation of a variety of equipment in the following categories: Microform, Mail Processing, Peripheral, Duplicating, and Copier/Duplicating. In addition to the obvious tasks of operating equipment, operators may perform simple clerical and minor maintenance tasks incidental to the operation of the equipment. The following paragraphs illustrate those categories and their respective equipment which are within the series coverage of the GS–350 Series Classification Standard. The equipment listed for each category is not intended to be all inclusive of the equipment operated in a particular category.

Microform

Planetary cameras, rotary cameras, step and repeat cameras, automated microfilm processors, roll-to-roll duplicators, fiche-to-fiche duplicators, reader printers, aperture card mounters, and computer output microfilmers.

Mail Processing

Bursting machines, forms separator slicers and nibblers, mail opener-counters, automatic mail sorting machines, binding machines, decollators, single or multiple station mail inserting machines, folding equipment (14″ x 24″ or less without right angle fold attachments), automatic labeling equipment, embossing and addressing machines, and non-impact (ink spray) addressing and labeling equipment.

Peripheral

Various input/output devices operated on or off line such as card reader/punches, tape drives, disk drives, high speed impact printers, xerographic printers, and computer form printers.

Duplicating

Small offset duplicators (lithographic presses, maximum sheet size 11″ x 17″) presses, electrostatic image makers (paper), sorters, and stapling equipment.

Copier/Duplicating

Xerographic or electrostatic copiers, telecopiers, magnetic computer tape to hardcopy equipment, high-speed copier/duplicators, diazo equipment, photostat equipment, and fluid and stencil equipment.

KNOWLEDGES, SKILLS, AND ABILITIES REQUIRED

The knowledge, skill, and ability required by a position reflect the nature and extent of information or facts which the equipment operator must understand (e.g., machine set up, operating procedures, adjustments, regulations, and policies) and the nature and extent of the skills and abilities necessary to do acceptable work. The knowledges, skills, and abilities described below at the various grade levels illustrate essential KSA's required to satisfactorily perform work at a given level of operating difficulty. Minimum Acceptable Evidence of Necessary Qualifications as stated on page 2 lists the actual qualification requirements for positions in this standard in terms of type and length of operating experience as well as level of difficulty.

GS–1: Ability to learn to operate equipment (e.g., xerographic copier/duplicators, magnetic tape drive units, rotary microfilm cameras, mimeographic machines, decollators) which can be set up to operate by following a few simple step-by-step instructions.

GS–2: Sufficient familiarity with the routine operation equipment (e.g., xerographic copier/duplicators, magnetic tape drive units, rotary microfilm cameras, mimeographic machines, decollators) which can be set up following a few simple step-by-step instructions.
Skill in the independent operation and minor maintenance (e.g., cleaning and lubricating) of the equipment.
Ability to perform duties incidental to the operation of the equipment (e.g.,

maintain machine operating records, update equipment maintenance logs).

GS-3: Basic knowledge of the set up and adjustment procedures and the operating characteristics of equipment (e.g., high-speed copier/duplicators, planetary or step and repeat cameras, automatic labeling, embossing, and addressing equipment, diazo or thermal duplicators, envelope inserting equipment, impact and non-impact computer printers, card-to-tape converters).

Skill to operate and perform a variety of setups and basic adjustments to the equipment (e.g., adjust gas flow and drive speed on a diazo machine to compensate for quality of originals and/or light sensitivity of the diazo materials, adjust the alignment of form paper and print spacing on an impact printer due to different carriage control tapes and various sizes of printout forms, adjust paper path settings and water/ink balance on a duplicator, adjust the feed mechanisms on a mail inserting machine to change over to different size envelopes and inserts, adjust the form alignment and the CRT intensity of a computer output microfilmer prior to running perforated tapes when lighter charter images are required).

GS-4: A thorough knowledge of the equipment setup, adjustment, operating procedures, and a corresponding level of skill to set up, operate, and adjust the equipment.

This level of skill and knowledge enables a highly skilled operator to set up, operate, and adjust the equipment, and in addition, diagnose, solve, and correct operating problems affecting the quality and timeliness of the service or product.

Typically, corrective adjustments performed require the operator to consider the symptom(s), possible causes and remedies (e.g., faded or washed out copies on a duplicator may be due to a worn or poor quality master, not enough ink, too much water, a glazed blanket, or insufficient pressure between blanket and impression cylinder, and may be corrected by replacing the master, increasing the ink flow, reducing the water feed rate, deglazing the blanket or increasing the pressure between the blanket and impression cylinder).

DEFINITIONS OF TERMS USED

Specialized Experience: Experience in the operation of equipment in any one of the five categories other than the category of equipment for which the application is made. The experience must have demonstrated the applicant's ability to operate the equipment at the appropriate level of difficulty as described in the GS-350 classification standard.

Specific Experience: Experience in the operation of equipment in any one of the five categories for which the application is made. The experience must have demonstrated the applicant's ability to operate the equipment at the appropriate level of difficulty as described in the classification standard.

MINIMUM ACCEPTABLE EVIDENCE OF NECESSARY QUALIFICATIONS

For GS-1, No experience is required. All candidates must be interested in and willing to learn to operate equipment within the series coverage and show evidence of likelihood for success on the job.

GS-2, Candidates must have three months of experience operating equipment common to the position to be filled at the next lower grade level or at an equivalent level of operating difficulty.

OR

Three months of responsible work experience in which the candidate has satisfactorily demonstrated the ability to follow written and/or verbal instructions, perform repetitive tasks, and follow routine procedures.

GS-3, Candidates must have six months of equipment operating experience of which five

months must be specific operating experience (i.e., experience in the operation of equipment in any one of the five categories for which application is made) at the next lower grade level and one month of specialized equipment operating experience (i.e., experience in the operation of equipment in any one of five categories other than the category of equipment for which application is made) at the next lower grade level.

OR

Six months of equipment operating experience, as stated above, at a level of operating difficulty equivalent to a GS–2 in this standard.

NOTE: The principle of the "add-on rule" (see FPM chapter 337, subchapter 3–1b) does not apply to positions in this standard at the GS–3 level and above.

GS–4, Candidates must have twelve months of equipment operating experience at the next lower grade level or at an equivalent level of operating difficulty of which nine months must be specific operating experience and three months of specialized operating experience.

QUALITY OF EXPERIENCE

For positions at the GS–2 level and above, the required amount of experience at the appropriate level of difficulty will not in itself be accepted as proof of qualification. The applicant's record of experience must have demonstrated the capacity to perform the duties of the position. An excess of specific experience requirements may be used to make up for a deficiency in specialized experience requirements and may be used as a quality ranking factor. Specialized and specific experience must be evaluated against the appropriate level of difficulty as described in the GS–350 classification standard.

WRITTEN AND PERFORMANCE TESTS

There are no written or performance tests required for positions at any grade level within this series.

SUBSTITUTION OF EDUCATION AND/OR SPECIALIZED COURSE OF INSTRUCTION FOR EXPERIENCE REQUIREMENTS

Successful completion of high school or study above the high school level cannot be evaluated as positive evidence of ability in terms of the relative knowledges, skills, and abilities required in this standard; likewise, the failure to complete such educational programs does not indicate a lack of ability.

There is no provision for the substitution of general education for experience requirements at any grade level within this series. However, under certain circumstances formal training programs and/or specialized courses of instruction in the operation of equipment in this series may be substituted for experience requirements. Under no circumstances may creditable training be substituted in lieu of or in combination with experience requirements for positions above the GS–3 level.

Successful completion of formal training programs and/or specialized courses of instruction in equipment operation (i.e., a multi-course program) may be substituted for specific experience requirements, provided that such training (e.g., vocational, technical military schools) included equipment set up, adjustment, and hands-on operating experience and that such training was designed to provide an individual with basic equipment operating skills upon completion. Training which is to be substituted for experience requirements must be appropriate for the equipment common to the position to be staffed. Full-time training may be substituted for "*specific*" *experience* requirements up to a maximum of 3 months on a month-for-month basis.

Specialized courses which are primarily intended to familiarize the operator in the proper operation and care of the equipment may not be substituted for experience requirements. Typically, equipment orientation courses do not develop operator skills. These courses may vary from a few hours to a few days in length.

SUPERVISORY POSITIONS

Apply the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part II, Handbook X–118, in conjunction with this standard.

BASIS OF RATING

Candidate for positions at grade GS–2 and above will be ranked by an evaluation of qualifying experience and/or creditable training. The experience must demonstrate possession of the knowledges, skills, and abilities required.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to safely and efficiently perform the essential functions of the position. Usable vision is required and, depending on the essential duties of a specific position, usable hearing may be required. However, in most cases, a specific physical condition or impairment other than complete loss of vision will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform. Reasonable accommodation may include, but is not limited to: job modification, provision of assistance devices, job restructuring, and/or provision of interpreters for deaf individuals.

SELECTIVE REPLACEMENT

Because positions in this series vary according to the category of equipment operated, the organization of the work, and the actual equipment operated, the actual skills and abilities needed in positions at the GS–3 level and above differ. (Agencies are encouraged to use selective placement of candidates to assure an optimum match between the capabilities of candidates and the key requirements of position to be filled.) Examples of key requirements of positions which may be appropriate quality ranking factors are: Specific type of equipment operated (functional purposes of equipment) or a high degree of proficiency in machine setup and adjustment.

Requests for certificates based on quality ranking factors should include a copy of the current position description and any additional information needed to document the job-relatedness of a requested factor. (See FPM chapter 332, subchapter 4–4 and Appendix B.)

INSERVICE PLACEMENT

Guidelines for appraising employees' qualifications and promotion potential are discussed in FPM chapter 335, *Evaluation of Employees for Promotion and Internal Placement.*

The evaluation of a candidate for positions in the series covered by this standard should focus on the required knowledges, skills, and abilities which indicate the candidate's ability to perform successfully the duties of the positions.

The actual skills and abilities needed in each position differ with the organization of the work, category of equipment and the specific equipment operated. Accordingly, the employee's experience should be evaluated in terms of the knowledges, skills, and abilities needed for success *in the job to be filled.*

Printing Clerk, GS–1/6
Supervisory Printing Clerk, GS–5/9

DESCRIPTION OF WORK

Positions in this series perform clerical duties in support of the control, procurement, and/or provision of printing services. The work involves, for example, processing requisitions for procurement of printing, identifying from agency guides established specifications, estimating costs for standard recurring publications, maintaining control records for production or cost purposes, etc. The work requires a knowledge of clerical procedures and operations peculiar to printing services. A technical knowledge of printing such as would be required for a position in the Printing Management Series, GS–1654, is not required.

EDUCATION AND EXPERIENCE REQUIREMENTS

For GS–1/3: Use the qualification standard for Clerk (various positions), GS–1/3, in the General Administrative and Office Services Group, GS–300.

For GS–4/6: Use the qualification standard for Clerk/Assistant, GS–4/6, in the General Administrative and Office Services Group, GS–300.

For Supervisory Positions: Use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of this handbook in conjunction with the GS–300 qualification standards specified above.

For positions also requiring skill in typing or stenography: Some positions in this series require typing or stenographic skill at the levels required by competitive standards. These positions are identified by the parenthetical addition of the words "typing" or "stenography" to the position title. To assure that candidates for these positions possess the degree of skill required, use the qualification standard for either the Clerk-Stenographer and Reporter Series, GS–312, or for the Clerk-Typist Series, GS–322, as appropriate, in conjunction with the GS–300 qualification standards specified above.

Substitution

Substitution of education for experience may be made by following the provisions in the standard for Clerk/Assistant, GS–300–4/6.

WRITTEN TEST

Apply the requirements in the standards for Clerk (various positions), GS–300–1/3, and Clerk/Assistant, GS–300–4/6.

BASIS OF RATING

See the standards for Clerk (various positions), GS–300–1/3, and Clerk/Assistant, GS–300–4/6.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules. Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in FPM Chapter 930. Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

PRINTING CLERICAL SERIES

Qualification standards applicable to positions in this series are the standards printed in Handbook X-118 for Clerk, GS-1/6 in the General Administrative, Clerical, and Office Services Group, GS-300 (January 1968), and Probational Examination Specifications 1890 and 1891.

DATA TRANSCRIBER SERIES

For positions at all grade levels in the Data Transcriber Occupation, GS–356

Data Transcriber

Data Transcriber Supervisor

DESCRIPTION OF WORK

Data Transcribers operate one or more kinds of typewriter-style keyboard controlled machines to transcribe or verify data in a form that can be used in automated data processing systems. Included are both keypunch machines that produce punched cards or tapes and machines that encode directly on magnetic tapes or discs. The work requires skill in operating a modified typewriter style alphabetic and numeric keyboard and ability to learn and apply detailed transcribing procedures. Data Transcribers may also perform editing or coding tasks, or other clerical work, in addition to transcribing machine operation.

Data Transcriber Supervisors plan and supervise the work of a group of Data Transcribers. Supervisors may also control the central processor of the data transcribing system.

EXPERIENCE, TRAINING, AND TEST REQUIREMENTS

For grade GS–1, no experience, education, or training is required. No written or performance test is required. Applicants must be willing to perform simple and repetitive data transcribing work and show evidence of likelihood of success.

For grade GS–2, applicants must demonstrate the ability to learn and accurately perform detailed office work requiring strict adherence to instructions, through:

1. Passing a written test of clerical abilities;

AND

2. Demonstrating skill in typing or operating a similar alphanumeric keyboard through either:
   (a) A certificate of proficiency;

   OR

   (b) Passing a keyboard performance test.

For grade GS–3, applicants must:

1. Demonstrate ability to learn and apply a variety of detailed procedural instructions through one year of education above the high school level[1]; →or 6 months of experience which must have involved← clerical, typing, or data transcribing assignments that required compliance with procedural instructions; or any time equivalent combination of such education or experience;

AND

2. Pass a written test of clerical abilities;

AND

3. Demonstrate ability to operate an alphanumeric data transcribing machine through either:
   (a) A certificate of proficiency;

   OR

   (b) Passing a keyboard performance test.

For grade GS–4, applicants must meet the experience requirements for grade GS–3 *plus* one additional year of keyboard experience, alone or in combination with other experience (e.g., clerical), that demonstrates the ability to learn and apply a variety of detailed procedures. At least 6 months of this additional experience must have been data transcribing work comparable to grade GS–3 in the Federal service.

---

[1] Education above the high school level means an educational institution (e.g., a business school or commercial school or college, secretarial school, junior college, or a college or university) for which high school graduation or the equivalent is a prerequisite and in which the applicant successfully completed study that involved primarily clerical coursework. Substantially full time study in the case of business and commercial schools is the equivalent of at least 20 classroom hours of instruction per week.

One academic year consists of approximately 36 weeks of substantially full-time study, or 30 semester hours, or the equivalent.

For supervisory positions. Apply the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

PHYSICAL REQUIREMENTS

→Applicants must be physically and mentally able to safely and efficiently perform the essential functions of the position. Depending on the essential duties of a specific position, usable vision, including the ability to distinguish basic or shades of colors, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform. Reasonable accommodation may include, but is not limited to: job modification, provision of assistive devices, and/or job restructuring.←

BASIS OF RATING

All applicants will be rated on a scale of 100, as follows:

1. Applicants for positions at grade GS–1 will be ranked on the basis of an evaluation of their willingness to do simple and repetitive data transcribing work and their likelihood of success in such work.
2. Applicants for positions at grades GS–2 and GS–3 will be ranked on the basis of their scores on the written test. Applicants for these positions must pass a performance test but this test is not used to rank the persons on the list of eligibles.
3. All applicants who are not required to take the tests will be ranked on the basis of an evaluation of the amount and quality of their experience and training.

MODIFICATION FOR INSERVICE PLACEMENT

1. The written test requirement is waived for all inservice placement action, but employees must have demonstrated the ability to learn and perform accurately detailed office work requiring strict adherence to instructions.

For grade GS–2, employees must have:

—Six months of any kind of training or experience that required speed, accuracy and attention to detail in following instructions.

2. Employees must demonstrate the required keyboard proficiency through satisfactory performance in a position that requires such skill, by successful completion of a training program designed to prepare employees for data transcribing work, or by passing a performance test administered by the employing agency.

GUIDE FOR EVALUATING CANDIDATES

The two kinds of abilities that are significant for success in this occupation are:

—Keyboard proficiency, and
—Ability to learn and apply accurately the data transcribing procedures.

Keyboard proficiency is a significant factor in evaluating candidates for inservice placement, particularly for positions involving a high volume of repetitive assignments with little variation in the data transcribed. However, when positions involve many different transcribing assignments, or complicated instructions, or require an understanding of the source documents, or similar factors, keyboard proficiency may be secondary to clerical abilities; such as ability to spot and correct errors, and ability to remember a variety of procedures. These clerical abilities and their relative significance to successful performance in the position to be filled must be evaluated along with the keyboard proficiency required.

In evaluating keyboard experience, bear in mind that:

—Accuracy is normally of more value than speed. An accurate keyer normally develops

greater speed with experience, but a careless keyer may have great difficulty in developing accuracy.

—Recency of experience may be considered but should not be given undue weight. If the skill was learned thoroughly, it normally "comes back" within a short time. Also check whether candidates have maintained typing skills through off-the-job activities (e.g., typing personal correspondence, volunteer typing work).

—Alphabetic keyboard skills are relatively interchangeable. Candidates who are skilled in the operation of one kind of data transcribing machine normally learn to operate a different kind of transcribing machine in 2 or 3 days training. Skilled typists normally acquire proficiency in operating data transcribing machines within a short period of time. Thus, under normal circumstances, experience in operating the specific data transcribing machine involved has little significance. However, this may be a very significant quality ranking factor for a position in a small activity that is not equipped to provide even this limited on-the-job training.

Coding Clerk, GS-1/6
Supervisory Coding Clerk, GS-5/9

DESCRIPTION OF WORK

Coding clerks are engaged in coding information from schedules, questionnaires, reports, documents, and other written source material, according to codes involving numerical and alphabetical symbols. Among the many types of information coded in the Federal Government are items relating to business and industry, medical history of individuals and causes of death, personnel data, and data on equipment and supplies. Most of this information is needed in coded form for use in automated data processing programs.

EDUCATION AND EXPERIENCE REQUIREMENTS

For GS-1/3: Use the qualifications standard for Clerk (various positions), GS-1/3 in the General Administrative, Clerical, and Office Services Group, GS-300.

For GS-4/6: Use the qualification standard for Clerk/Assistant, GS-4/6, in the General Administrative, Clerical, and Office Services Group, GS-300.

For supervisory positions: Use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of this handbook in conjunction with the GS-300 qualification standards specified above.

Substitution

When filling positions at grades GS-4/6, substitution of education for experience may be made following the provisions of the standard for Clerk/Assistant, GS-4/6.

EVALUATING EDUCATION AND EXPERIENCE

In applying the provisions for experience in related fields and for closely related academic study in the GS-300 qualification standards specified above, credit should be given for experience or study in the subject matter field of the information being coded.

In filling positions noncompetitively at GS-4 and above credit may be given for experience in positions such as statistical clerk, file clerk, general clerk, and clerk-typist when performance of the duties of the position involved some of the subject-matter knowledges required by coding positions at the higher levels. Statistical clerks, file clerks, general clerks, and clerk-typists are sometimes located in areas of work closely related to coding, and their experience frequently is acceptable as experience in related fields. For example, clerks and clerk-typists working with files, procedures, and classification systems in a certain subject-matter area may acquire pertinent knowledge that would be of value in learning to apply coding instructions in that subject-matter area.

WRITTEN TESTS

Apply the requirements in the standards for Clerk (various positions), GS-300-1/3, and Clerk/Assistant, GS-300-4/6.

BASIS OF RATING

See the standards for Clerk (various positions), GS-300-1/3, and Clerk/Assistant, GS-300-4/6.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited

to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules. Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in FPM Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

ELECTRIC ACCOUNTING MACHINE OPERATION SERIES

EAM Operator, GS–2/5
Supervisory EAM Operator, GS–5/12

DESCRIPTION OF WORK

EAM operators set up and operate and/or plan jobs, prepare wire control boards and operate unit record equipment that typically use punched cards as the recording or processing medium and execute a limited number of commands (typically 40 or fewer). The equipment is neither part of, nor does it constitute a digital computer system.

Experience Requirements:

Applicants must have the kinds, quality and amount of experience indicated in the following table and explanatory information.

Grade	General Experience (years)	Specialized Experience (years)	Total Experience (years)
GS–2	½		½
GS–3	1		1
GS–4	1	1	2
GS–5	1	2	3
GS–6	1	2½	3½
GS–7	1	3	4
GS–8	1	3½	4½
GS–9	1	4	5
GS–10	1	4½	5½
GS–11 and above	1	5	6

General Experience is any machine operating or clerical experience that involves following written instructions or step by step procedures. Graduation from a four year high school or possession of a GED equivalency certificate satisfies the general experience requirements for GS–2.

Specialized Experience is experience in setting up electric accounting machines for operation including the wiring of plug boards and control panels, the setting of control pins and levers, and the conducting of tests using test decks and other procedures, to determine proper functioning of machines, and when applicable, accuracy of wiring. For grades GS–4 and GS–5 the specialized experience must have involved a wide variety of EAM machines. In addition, for GS–5 the specialized experience must have involved responsibility for whole, simple, small projects (planning, wiring and operating a few machines) including the determination of which machine to use to process the project and responsibility by the applicant for the adaptation or modification of planning procedures and instructions.

Planning Experience is responsible specialized experience in the development of basic and detailed mechanical and sometimes clerical procedures and work methods including development of wiring diagrams, designing card forms, and planning the sequence of machine steps.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for Supervisory Positions in the General Schedule Occupations in Part III of Handbook X–118 should be used in conjunction with the requirements in this standard.

BASIS OF RATING

GS–2/3 applicants will be rated on the basis of written test scores except for applicants for whom the written test may be waived. When the written test is thus waived and for positions at grades GS–4 and above, applicants will be rated on an evaluation of the quality and extent of their experience, education or training.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the positions without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommoda-

tion may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standard for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

EQUAL OPPORTUNITY COMPLIANCE SERIES

Equal Opportunity Specialist, GS-5/15
Supervisory Equal Opportunity Specialist, GS-11/15

DESCRIPTION OF WORK

This series includes positions performing, supervising or managing analytical, evaluative, and interpretive work in the enforcement of civil rights or equal opportunity laws, orders, and regulations. Work typical of this series includes investigation and/or conciliation of allegations of discrimination, and equal opportunity compliance reviews of firms, public agencies, and other institutions. Positions in this series require investigative, factfinding, analytical, conciliation, and negotiation skills, and knowledge of the civil rights and equal opportunity laws, regulations, and related court decisions being enforced, and skill in interpreting them in specific situations.

For further information about the nature of the work performed by employees in the Equal Opportunity Compliance Series, see the position classification standard. The criteria in the classification standard, and in particular, the benchmark descriptions, should be helpful in evaluating the level of experience a candidate has gained outside of the Federal Government, or in any other position outside of the General Schedule.

HOW TO USE THIS STANDARD

STEP ONE: Analyze the position to be filled. Determine the major duties and responsibilities of the position, prepare a complete and accurate position description in Factor Evaluation System (FES) format, and classify the position.

STEP TWO: Identify the job-related knowledges, skills, and abilities required by the position to be filled. Only those elements required by the position to be filled will be used for evaluating candidates. Properly classified positions require the knowledges and skills described in this standard for the appropriate grade level. Additional selective factors and quality ranking factors may be needed. (See *SELECTIVE PLACEMENT* below.)

STEP THREE: Determine the extent to which each applicant possesses the required knowledges, skills, and abilities. The process of identifying and evaluating evidence of applicants' possession of required knowledges and skills requires the rater to be knowledgeable about the position and to use sound judgment in evaluating the evidence of required qualifications. It also requires skill in identifying evidence from various sources. The following sources are generally acceptable:

(1) job application;
(2) supplemental application form;
(3) employment vouchers from former supervisors, teachers, and others;
(4) interview reports.

Optional checklists are provided in Appendix A and Appendix B to assist you with the job analysis.

CAREER MOBILITY

Successful work experience in positions in the Civil Rights Analysis Series, GS-160, or the Equal Employment Opportunity Series, GS-260, may be qualifying for positions at the next higher level in this series depending on the similarity between the knowledges and skills gained in the former position and required by the position to be filled.

WRITTEN TESTS

None.

MINIMUM EXPERIENCE REQUIREMENTS

Minimum time requirements have been established in this standard. For example, except for authorized educational substitutions, a minimum of three years acceptable experience is required for GS-5. Also, a minimum of one year of experience of the appropriate quality level and kind is required for most higher graded positions. This minimum experience requirement ensures that each applicant will have a period of time to both develop *and* demonstrate the required knowledges and skills. This requirement gives the employing agency minimum assurance that the applicant can do the work of the position. It also provides each applicant with

an equal minimum amount of time to demonstrate possession of the required knowledges and skills.

In general for positions above GS–5, the *minimum length* of relevant experience required is only *one year**. However, the kind and level of this experience must have demonstrated possession of the required kinds and qualities of knowledges and skills.

Applicants are considered to possess minimum qualifications if they have the following levels and amount of satisfactory work performance *in the same line of work:*

—For grades GS–7 through GS–11** at least one year of experience comparable to the second lower grade in the Federal Service (e.g., one year in the GS–9/10 range is required for GS–11).

—For grades GS–12 and above, 1 year of experience at a level of difficulty comparable to that of the next lower grade in the Federal Service.

In determining if applicants possess the required knowledges and skills for a particular grade level, consider *all* paid and unpaid experience, education, and training whether or not it occurred during the minimum one year of experience. Knowledges and skills demonstrated throughout an applicant's work and education history should be considered to determine if they are of the appropriate kind and level.

*Requirements for GS–5.****

Applicants must meet the requirements of A, B, or C below:

A. Three years of experience (including one year equivalent to GS–4) in administrative, investigative, technical, or other responsible work that demonstrated possession of the skills required to perform work typical of this series;

OR

B. Successful completion of a full 4-year course in an accredited college or university leading to a bachelor's degree in any field. (This level of education is acceptable evidence of possession of all of the skills required for GS–5.);

OR

C. Any time equivalent combination of experience and education defined in A and B above. In combining education with experience, an academic year of study is considered equivalent to 9 months experience.

The total creditable experience and/or education described in A or C above must have demonstrated possession of the following:

1. *Skill in writing.* This includes skill in writing factual reports (including analyses and conclusions) that are clear, concisely stated, logically organized, and understandable by the audience for which they are intended.

   This skill may be demonstrated by:

   a. work experience that involved writing investigative reports or other kinds of reports which present facts, analyses of facts, and conclusions;
   b. work experience writing straight news, features, or editorials for a newspaper or other publication;
   c. completion of a "senior paper" equivalent to a Junior or Senior level college course; or
   d. other equivalent demonstration of writing skill.

2. *Skill in oral expression.* This includes the skill to express oneself clearly, concisely, and logically in one-to-one interviews, group meetings, and oral presentations before groups.

   This skill may be demonstrated by:

   a. work experience in which interviewing, or other forms of oral expression are

*However, *two years* of technical assistance work experience at GS–5 or above is required for GS–7. (See Requirements for GS–7, paragraph B, below.)

**In the event any positions are filled at GS–6, one year of experience at the GS–5 or equivalent level is required.

***Applicants who meet the requirements for GS–7 also qualify for GS–5 or GS–6.

critical to successful performance such as classroom teaching, social work, counseling, some secretarial work typical of the GS-318 series, some police work typical of the GS-083 series, or investigative work typical of the GS-1810 or GS-1811 series in the General Schedule;

b. college level courses in such areas as speech, public speaking, etc.;

c. performance in a structured employment interview designed to measure this skill; or

d. other equivalent demonstration of skill in oral presentation.

3. *Skill in investigating and analyzing problems.* This includes skill in determining sources of information, gathering the information through systematic review of general and specialized references, and from individuals through interviewing, assembling, interpreting, and evaluating a large number of facts to define a problem, identify root causes, and arrive at a solution.

This skill may be demonstrated by:

a. work experience requiring this skill such as newspaper reporting, investigative work, or research assistance work;

b. work in a wide variety of fields which involved the application of problem analysis techniques (e.g., describing a problem, identifying possible causes of the problem, collecting evidence, testing the possible causes, deciding on the most likely cause, and prescribing a solution to fit the problem). Skill in problem analysis may be directed to problems related to people, things, or data. Therefore, this skill may have been demonstrated in jobs as varied as social work support, instructor, instructional assistance, engineering technician, product inspection, statistical assistance, or other kinds of problem solving work;

c. successful completion of several college level courses, or independent study at an equivalent level, that involved the preparation of research papers for which extensive gathering and analysis of data was required (e.g., library research or interviewing for information); or

d. other equivalent demonstration of this skill.

4. *Skill to read, understand, interpret, and explain technical material such as written regulations, laws, or court decisions.* This includes the ability to interpret the specialized language of laws and regulations in the context they were written, to quickly gain an understanding of their meaning, to apply them to a variety of specific factual situations, and to be able to clearly explain their meaning to persons unfamiliar with the particular body of laws or regulations.

This skill may be demonstrated by:

a. legal clerical or legal secretarial work that involved explaining the contents of legal documents to the general public (Typing legal documents does not meet this requirement.);

b. substantive clerical or technical assistance work in insurance, banking, Federal personnel administration, military personnel administration, Federal income tax, employment assistance, welfare or public assistance, or similar work that involved reading and understanding operating or repair manuals, or technical or substantive regulations well enough to apply them to a variety of factual situations, or to explain them to the general public;

c. technician work in engineering, the physical sciences, or social science research that required reading and understanding complex technical material;

d. a college level course in areas such as constitutional law, business law, administrative law, or similar courses; or

e. other equivalent demonstration of this skill.

5. *Skill in meeting and working effectively with persons regardless of their socioeconomic backgrounds.* This includes skill in dealing and communicating with men and women of various racial and ethnic backgrounds and socioeconomic strata of society. This element measures potential skill in dealing effectively with a variety of persons such as university presidents, corporation managers, politicians, lawyers, factory workers, students, teachers, unemployed or disadvantaged persons, or representatives of community or civil rights organizations.

This skill may be demonstrated by paid or volunteer work experience or educational experiences that involved working contacts with men and women of different races, ethnic origins, and persons who hold both high and low positions in organizational or institutional hierarchies. Many kinds of public contact work may demonstrate this skill from working as a receptionist to serving as a recreational assistant.

Requirements for GS-7.

Applicants must meet the requirements of A, B, C, or D below:

A. One year of satisfactory performance in a GS-5 or equivalent trainee position in any line of work that leads to the performance of analytical, interpretative, and judgmental work (e.g., two-grade interval work in the General Schedule);

OR

B. Two years of experience doing technical assistance work (one-grade interval work in the General Schedule, or equivalent):

(1) that is *closely related* to the position to be filled such as work typical of the Equal Opportunity Assistance Series, GS-361 (See the position classification standard for that series.); and

(2) that is equivalent in level of difficulty to GS-5 or above in the General Schedule;

OR

C. Superior Academic Achievement as defined in Part II, Section III of this Handbook;

OR

D. One full academic year of graduate study in any field or one year leading to a *Bachelor of Law* or *Doctor Juris* degree.

The total creditable experience or education described in A, B, C, or D above must have demonstrated possession of all of the skills required for GS-5 (above). However, possession of higher levels of these skills will have been more clearly demonstrated by concrete work accomplishments, post-graduate education achievement, or unusual scholarship.

Requirements for GS-9.

Applicants must meet the requirements of A or B below:

A. One year of experience involving work of an analytical nature in a GS-7 or equivalent position in equal opportunity or a related field such as management analysis, program analysis, investigation, personnel administration, education, housing, or other field related to the position to be filled;

OR

B. Two full academic years of graduate study, or completion of all requirements for master's degree, or equivalent degree in an academic field or fields directly related to the position being filled, or completion of two academic years leading to a *Bachelor of Law* or *Doctor Juris* degree. (*See Graduate Education.*)

The creditable experience or education described above *must* have demonstrated possession of the following:

1. *Developed skill in writing.* This includes skill in organizing, writing, and proofing written material in a variety of formats

including narrative reports, memoranda, and letters for a variety of audiences; skill in organizing principles, concepts, and facts in a logical manner appropriate to the subject and the intended audience; and skill in presenting the material clearly, accurately, and concisely.

This skill may be demonstrated by:

a. experience in a position which required regular assignments to write in a variety of formats for diverse audiences including investigations, research work, public information work, newspaper reporting, position classification, or any of a wide variety of similar positions in the General Schedule, or other equivalent positions outside the General Schedule;

b. a college undergraduate major or minor in English, journalism, or similar fields;

c. several graduate courses in English, journalism, or similar fields; or

d. other equivalent demonstrations of skill in writing.

2. *Developed skill in investigating and analyzing problems.* This includes skill in identifying the most appropriate sources of information; skill in obtaining information by referencing library sources, files, or other documents; skill in interviewing or questioning persons to obtain or clarify facts and opinions, to identify issues or problems, develop working hypotheses, select and use an appropriate analytical technique, identify and evaluate relevant facts to draw reasoned conclusions, and clearly present and defend findings in writing or orally.

This skill may be demonstrated by:

a. experience in a position which required this skill such as equal opportunity complaint investigating, management analysis, social science analysis, physical science research support, position classification, computer systems analysis, or a wide variety of similar kinds of work;

b. undergraduate or graduate education in the social sciences, physical sciences, engineering, or other fields that demonstrated this skill; or

c. other equivalent experience or education that demonstrated this skill.

3. *Skill in making personal contacts.* This includes skill in dealing effectively with persons holding opposing positions on issues by clearly and persuasively presenting a position, listening to and understanding the other person's position, compromising and/or agreeing when it is appropriate, and standing fast and arguing persuasively when that course is appropriate.

This skill may be demonstrated by:

a. experience in any of a wide variety of positions that require face to face resolution of substantial differences such as labor contract negotiation (e.g., as a member of a union negotiating team), informal equal employment opportunity complaint resolution (e.g., as an equal employment opportunity counselor), or other demonstrations of this skill;

b. education which demonstrated this skill such as an undergraduate major or minor in speech, college debating experience, or several college courses in law or other fields that involved oral presentations and oral arguments by the student; or

c. other equivalent demonstration of negotiating skill.

4. *Knowledge of the concepts, principles, and methods of the equal opportunity area or program in which the position is located;*

OR

Skill to learn the substantive knowledges, principles, concepts, and methods of a broad and directly related subject matter field. (Candidates for equal opportunity specialist positions at this level may or may not have had practical work experience in the equal opportunity field. Therefore, candidates should be evaluated on their knowledge of the principles, concepts, and methods of the field, or their

skill to rapidly acquire this knowledge.)

Possession of this knowledge, or the skill to acquire it is demonstrated by:

a. one year of successful work experience in a position at GS–7, or the equivalent outside the General Schedule, that involved knowledges similar to those of the position being filled (For example, the position in which the experience was gained requires knowledge of the same or similar laws, principles, regulations, and investigation, negotiation, or enforcement procedures and methods);

b. having developed knowledge of the principles, concepts, and methods of a directly related broad subject matter field. This includes: (1) successful completion of a broad education program similar to that described below under *Graduate Education*, or (2) work experience in a position at GS–7, or the equivalent outside the General Schedule, that involved analytical equal opportunity compliance work, or (3) work experience in a position at GS–7 or the equivalent outside the General Schedule in another directly related analytical occupation (e.g., management analysis or personnel administration.)

5. *Knowledge of the laws, regulations, and policies being enforced or administered.* General knowledge of the requirements of the laws, regulations, and/or policies being enforced, and sources for researching equal opportunity compliance principles and/or precedent decisions.

This knowledge may be demonstrated by work experience in civil rights or equal opportunity programs; legal or paralegal experience; substantive work experience in programs regulated by the civil rights laws, regulations, or policies being enforced; legal education; or postgraduate education.

Requirements for GS–11.

Applicants must have at least one year of experience performing work of an analytical, interpretative, and judgmental nature. For GS–11 level positions, one year of experience must have been at or above the GS–9 or equivalent level. This experience must have demonstrated possession of the following:

1. *Knowledge of the laws, regulations, and policies being enforced.* Knowledge of the laws, regulations, and/or policies being enforced including knowledge of the most significant precedent decisions and/or principles governing enforcement techniques or voluntary compliance techniques and skill in applying them in a variety of factual situations.

This knowledge may be demonstrated by experience in enforcing or administering civil rights or equal opportunity laws or regulations that are generally similar to those being administered or enforced by the position being filled.

2. *Investigative skills.* Skill in planning, conducting, and reporting on investigations having conflicting testimony and voluminous information. This requires skill in organizing and weighing evidence, and relating a number of facts to several complex issues.

OR

Skill in conducting organizational reviews of equal opportunity compliance. This skill may be demonstrated by experience in conducting broad or complex investigations in a variety of areas.

Requirements of GS–12 and above.

Applicants must have at least one year of experience performing work of an analytical, interpretative, and judgmental nature at the next lower grade in the General Schedule (or equivalent) that demonstrated possession of the following:

1. *Knowledge of laws, regulations and policies being enforced.* Broad and detailed knowledge of the body of laws, regulations, and policies enforced by the employing agency to the extent that the applicant can speak authoritatively for the agency

concerning substantive matters of major importance to the agency. This experience may be demonstrated by substantial accomplishments in a broad range of areas directly related to the enforcement of civil rights or equal opportunity laws, regulations, or policies, or equivalent experience.

2. *Investigative skills.* Skill in planning, conducting, and reporting on complex investigations having several related allegations, conflicting testimony, and voluminous information. This requires skill in organizing and weighing evidence, and relating a very large number of facts to several complex issues.

OR

Skill in conducting comprehensive organizational reviews of equal opportunity compliance. This skill may be demonstrated by experience in conducting broad or complex investigations in a variety of areas.

GRADUATE EDUCATION

Graduate education is considered directly related to the position being filled *only* if it demonstrated possession of the knowledges and skills needed for successful performance of the essential work of the position. However, the graduate study may be supplemented by other education, training, or experience which as a whole demonstrated ability to do the essential work of the position.

The following are *examples* of graduate fields that may satisfy the requirements for positions at GS–9:

Type of Position	*Graduate Study Field*[1]
Equal Opportunity Specialist managing broad fair housing and equal opportunity programs.	Urban studies, City Planning, Law, or Real Estate, supplemented by experience or education in Management or Administration.
Equal Opportunity Specialist involving investigation and conciliation of employment discrimination complaints;	Law, Personnel, Labor or Industrial Relations, Business or Public Administration.
OR	
Equal Opportunity Specialist involving contract compliance reviews.	
Equal Opportunity Specialist involving reviews of educational *and* other institutions.	Law, Business or Public Administration;
	OR
	Education, supplemented by experience or education in Business or Public Administration.

SELECTIVE PLACEMENT

Some positions require subject-matter knowledge of a specialized nature, or specialized skills not described in this standard. Job related selective factors may be constructed in these cases. Spanish speaking skill is an example of a selective factor that may be used for positions in this series at any grade level where appropriate. Selective factors may be required for positions at GS–9 and above that require additional specialized subject-matter knowledges.

Selective factors may be appropriate for positions that require a specialized knowledge of the equal opportunity problems of a class or category of persons, or specialized knowledge of a subject-matter field.

This knowledge may be demonstrated by a substantial period (e.g., 6 months) of paid or unpaid experience, or directly related graduate or undergraduate college education that shows

[1] Note: Consider the content of courses and academic areas rather than the titles or labels applied to them.

that the applicant possesses detailed knowledge of the barriers to equal opportunity in a specific area, e.g., housing, or knowledge of the barriers to equal opportunity faced by specific classes or categories of persons, e.g., women, veterans, handicapped persons, etc. For example, an applicant for a position of Equal Opportunity Specialist, GS–360–12, concerned with the special employment problems of the handicapped, may be required to possess paid or unpaid experience or education that clearly shows that the applicant understands the equal opportunity problems faced by handicapped people in the United States and is familiar with techniques of resolving these problems.

PHYSICAL REQUIREMENTS—ALL LEVELS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but it is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

SUPERVISORY POSITIONS

Use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X–118 in conjunction with this standard.

BASIS OF RATING

All candidates will be rated on a scale of 100. The basis of rating will be an evaluation of the candidate's experience, education, and training in relation to the duties of the position to be filled. Work experience and relevant course work above the minimum required for a particular position at a particular grade level will be considered in ranking qualified applicants based on the relatedness of the work experience or courses to the position's required knowledges and skills. Rating will be based on statements in the application form, any supplemental information forms, and any additional evidence received by the examining office. A written test is not required.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For positions requiring operation of a motor vehicle, applicants must either hold, or obtain within 30 days of employment, appropriate State and U.S. Government motor vehicle operator's permits.

Appendix A

Optional Position Element Profile

Equal Opportunity Compliance Series

Organization:

Title, series, grade: PD #

Element (KSA):*	Required (X)	Ranking factor (X)	PD reference
Basic requirements:			
1. skill in writing			
2. skill in oral expression			
3. skill in investigating and analyaing problems			
4. skill in reading and interpreting technical material			
5. skill in working with persons of various socioeconomic backgrounds			
Other requirements:			
Element *Grade Level*			
1			
2			
3.			
4.			
5.			
Selective factors:			
1.			
2.			
3.			
Specialized knowledge requirement:			

*KSA means knowledge, skill, or ability.

Appendix B

Optional Applicant Appraisal Form

Date: **Applicant Name:**

Position to be filled:

Organization: _____
Title, series and grade: _____

Required KSAs	Required factor (X)	Ranking factor (X)	Level (A, B, C, D, or E)	Comments
Basic elements:				
1. skill in writing				
2. skill in oral expression				
3. skill in investigating and analyzing problems				
4. skill in reading and interpreting technical material				
5. skill in working with persons of various socioeconomic backgrounds				
Additional elements:				
1.				
2.				
3.				
4.				
5.				
Selective factors:				
1.				
2.				
3.				
Specialized knowledge requirement:				

Required and Ranking factors:

Check the appropriate column to indicate if each KSA is required or is being used to rank applicants, or is both a required and ranking factor. Most KSA's listed on Appendix B will be required KSAs. Some will be both required and ranking factors. Occasionally a KSA may be used only to rank applicants.

Level Codes for each knowledge or skill:

A.—Little knowledge or skill in this area.
B.—Had study or training in this area.
C.—Used this knowledge or skill, but was closely supervised.
D.—Used this knowledge or skill on own, under normal supervision.
E.—High level of proficiency with respect to this knowledge or skill. Considered an expert in use of this knowledge or skill. Can use it to perform difficult or highly specialized tasks.

Equal Opportunity Assistant, GS-4 and above
Supervisory Equal Opportunity Assistant, GS-5 and above

DESCRIPTION OF WORK

This series includes positions supervising or performing technical work in support of equal opportunity and civil rights programs or activities. The paramount qualification requirement is a practical knowledge of the methods, procedures, regulations, and purposes of the equal opportunity or civil rights function the position supports. These positions do not require the broad knowledge of equal opportunity and civil rights principles, or the depth of skill in analysis, interpretation, and decision-making characteristic of the Equal Opportunity Compliance, Equal Employment Opportunity or Civil Rights Analysis Series.

For further information about the nature of the work performed by employees in the Equal Opportunity Assistance Series, see the position classification standard. The criteria in the classification standard including the benchmark descriptions, should be helpful in evaluating the level of experience a candidate has gained outside of the Federal Government, or in any position outside of the General Schedule.

HOW TO USE THIS STANDARD

STEP ONE: Analyze the position to be filled. Determine the major duties and responsibilities of the position, prepare a complete and accurate position description in Factor Evaluation System (FES) format, and classify the position.

STEP TWO: Identify the job-related knowledges, skills, and abilities required by the position to be filled. Only those elements required by the position to be filled will be used for evaluating candidates. Properly classified positions require the knowledges and skills described in this standard for the appropriate grade level. Additional selective factors and quality ranking factors may be needed. (See *SELECTIVE PLACEMENT* below.)

STEP THREE: Determine the extent to which each applicant possesses the required knowledges, skills, and abilities. The process of identifying and evaluating evidence of applicants' possession of required knowledges, skills, and abilities requires the rater to be knowledgeable about the position, and to use sound judgment in evaluating the evidence of required qualifications. It also requires skill in identifying evidence from various sources. The following sources are generally acceptable:

(1) job application (SF-171);
(2) supplemental application form;
(3) employment vouchers from former supervisors, teachers, and others; and
(4) interview reports.

A written test may not be used to evaluate applicants.

Optional checklists are provided in Appendix A and Appendix B to assist you with the job analysis.

MINIMUM EXPERIENCE REQUIREMENTS

Minimum time requirements have been established in this standard. The minimum experience requirement insures that each applicant will have a period of time to both develop *and* demonstrate the required knowledges and skills. This requirement gives the employing agency minimum assurance that the applicant can do the work of the position. It also provides each applicant with an equal minimum amount of time to demonstrate possession of the required knowledges and skills.

Note: A substitution of education for experience is provided below for GS-4. *No* substitution of education for experience is provided for GS-5 and above.

Note: The *minimum length* of relevant experience required for positions in this series is *one year*. However, the kind and level of this experience must have demonstrated possession of the required kinds and qualities of knowledges and skills.

Requirements for GS-4

Applicants must meet the requirements of A, B, or C below:

A. One year of paid or voluntary work experience equivalent to the GS-3 level;

OR

B. Successful completion of 2 full academic years in an accredited college or university in any subject area, or equivalent study in an educational institution above the high school level;

OR

C. Any time equivalent combination of experience and education defined in A and B above.

The total creditable experience and/or education described in A, B, or C, must have demonstrated possession of the following:

1. Knowledge of basic grammar, vocabulary, spelling, and composition to write simple letters, and memoranda;
2. Skill in understanding and following instructions;
3. Skill in working under pressure to meet deadlines;
4. Skill in planning, organizing, and completing a variety of concurrent work assignments; and
5. Skill in meeting and dealing effectively with the general public and persons doing business with the employing agency. (This includes the potential to develop skills in oral communication and listening to interview persons such as witnesses, complainants, and respondents.)

The following kinds of experience are *examples* of work which *may* provide the required knowledge and skills:

—Secretarial or general clerical work which involved typing and proofing correspondence or reports, and personal contacts with visitors or callers to an office or establishment that involved obtaining factual information from the visitor or caller;

—Active participation in social work, social service, recreational, civic, political, community, religious, or other programs that involved interviewing or counseling *and* required accurate recordkeeping, clear writing, and correct grammar.

Requirements for GS-5 and GS-6

One year of successful performance equivalent to the next lower grade in this series which demonstrated that the applicant possesses the following:

1. Knowledge of equal opportunity laws and regulations pertinent to the position to be filled (e.g. sufficient to assist complainants in filing charges);
2. Skill in interviewing persons from diverse social, economic, and ethnic backgrounds;
3. Skill in evaluating and organizing facts, extracting relevant information from various sources (documents and interviews), and comparing information to applicable regulations or guidelines;
4. Skill in reading, understanding, and interpreting a variety of regulations (e.g., skill in quickly learning the agency's jurisdiction and State fair employment agencies' jurisdiction for deferral of cases).

The following kinds of experience are *examples* of work which *may* provide the required knowledge and skills:

—Technical work or substantive clerical work in fair employment practices agencies or Federal equal opportunity programs which involved applying agency regulations to a variety of factual situations; analysis of facts to arrive at conclusions based on regulations; writing letters, memoranda, or reports, and interviewing;

—Technical work or substantive clerical work in a field closely related to the position to be filled provided that the experience involved applying regulations, analyzing facts, and writing. For example, experience as a Staffing Assistant, GS-203, may demonstrate the knowledges, skills, and abilities required for an Equal Opportunity Assistant position in an equal employment opportunity (EEO) compliance or internal Federal EEO program.

REQUIREMENTS FOR GS-7 AND ABOVE

One year of successful performance equivalent to equal opportunity assistant work at the

next lower grade level which demonstrated that the applicant possesses the following:

1. Detailed knowledge of the specific laws and/or regulations being enforced (e.g., Title VII of the Civil Rights Act of 1964, as amended), or equivalent knowledge of the requirements, procedures, and objectives of the employing office sufficient to provide indepth technical assistance to equal employment opportunity specialists and/or complainants. For example, knowledge to assist EEO complainants in drafting complaints and to assist in obtaining information from other parties in the complaint;
2. Detailed knowledge of the employing agency's equal opportunity or civil rights program and its relationship to other agencies and programs. For example, knowledge of fair employment practices (FEP) statutes, and FEP agencies' jurisdiction and procedures;
3. Skill in factfinding and analysis (e.g., skill in developing interrogatories and analyzing responses);
4. (For positions in equal opportunity compliance programs) Broad knowledge of the equal opportunity compliance process such as the steps in investigating, conciliating, and adjudicating complaints, and the relationship between these steps;
5. (For positions performing research for program evaluation support work) knowledge of and skill in applying a variety of statistical and/or analytical tools or methods related to the position being filled.

For example, the following work *may* provide the required knowledge and skill:

—Technical work in the program in which the position is being filled, or technical work in closely related programs which required detailed knowledge of the laws and regulations being enforced and/or the technical requirements and procedures of the program.

SELECTIVE PLACEMENT

For certain positions, selective criteria directly related to the position to be filled may be appropriate. For example, fluency in conversational Spanish or other languages may be required for certain positions at any grade level.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

SUPERVISORY POSITIONS

Use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X-118 in conjunction with this standard.

BASIS OF RATING

All candidates will be rated on a scale of 100. The basis of rating will be an evaluation of the candidate's experience, education, and training in relation to the duties of the position to be filled. Work experience and relevant course work above the minimum required for a particular position at a particular grade level will be considered in ranking qualified applicants based on the relatedness of the work experience or courses to the position's required knowledges and skills. Ratings will be based on statements in the application form, any supplemental information forms, and any additional evidence received by the examining office. A written test is not required.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For positions requiring operation of a motor vehicle, applicants must either hold, or obtain within 30 days of employment, appropriate State and U.S. Government motor vehicle operator's permits.

Appendix A

OPTIONAL POSITION PROFILE

Employing Organization:

Title, series, and grade: Position number:

(1) List knowledges, skills, abilities and other characteristics of the position (KSAs)	(2) Required factor (X)	(3) Ranking factor (X)	(4) PD reference:

(See following page for instructions on use of this form)

USING THE POSITION PROFILE

NOTE: It is not necessary to conduct a detailed job analysis and develop a POSITION PROFILE for every position you fill. Once it is developed, a POSITION PROFILE may be used again for substantially similar positions at the same grade level.

—Complete identifying information at the top of the page.

—Column (1): After analyzing and evaluating the position to be filled and before evaluating applicants' qualifications, list the knowledges, skills, abilities, and other characteristics (KSAs) of the position.

—Columns (2) and (3): Check (X) the appropriate column(s) to show whether each KSA is (a) required for satisfactory performance, (b) a ranking factor, or (c) both required and a ranking factor. Required KSAs are necessary for satisfactory performance. Persons who do not possess these elements to a reasonable degree generally cannot do the work of the position. Ranking factors are KSAs that distinguish between qualified and potentially superior workers.

—Column (4): Show the page and paragraph of the position description that describes the duty or responsibility that support the KSA.

—After analyzing and evaluating the position to be filled and before evaluating the qualifications of individual applicants, compare the list of the position's *required* KSAs with the required KSAs in this standard for positions at the same grade level. If they are in substantial agreement go on to the next step, evaluating applicants' qualifications for the position. If the required KSAs in this standard are not found to be required by the position being filled, either the position is misclassified and must be classified in another series or grade, *or* a waiver of qualifications must be approved.

Appendix B

OPTIONAL APPLICANT APPRAISAL

Date: Name of candidate:	Position being filled (title, series, and grade):			
(1) Knowledges, skills, abilities and other characteristics of the position (KSAs), from the POSITION PROFILE, Appendix A)	(2) Required factor (X)	(3) Ranking factor (X)	(4) Level (A, B, C, D, or E)	(5) Source of evidence of other comment

(See following page for instructions on use of this form)

USING THE APPLICANT APPRAISAL FORM:

—Prepare a separate applicant appraisal for each applicant.
—Complete identifying information at the top of the page.
—Column (1): List the KSAs of the position being filled from the POSITION PROFILE, Appendix A.
—Columns (2) and (3): check (X) the appropriate column(s) to show whether each KSA is (a) required for satisfactory performance, (b) a ranking factor, or (c) both required and a ranking factor.
—Column (4): Code each KSA according to the degree to which the applicant has demonstrated possession of the KSA. Use the following definitions:

A.—Little knowledge or skill in this area.
B.—Had some study or training in this area, or is generally familiar with this area.
C.—Used this knowledge or skill, but was closely supervised.
D.—Used this knowledge or skill on own, under normal supervision.
E.—High level of proficiency with respect to this knowledge or skill. Considered an expert in use of this knowledge or skill. Can use it to perform difficult or highly specialized tasks.

—Column (5): Show the source of information that the applicant has the knowledge, skill, or ability (e.g. "SF—171, most recent position"); and/or give your reason for your conclusion.
—Applicants with "C", or better on all required elements are qualified.

ELECTRIC ACCOUNTING MACHINE PROJECT PLANNING SERIES

EAM Project Planner GS–5/12
Supervisory EAM Project Planner GS–7/12
EAM Program Supervisor GS–9/12

See also the qualification standard for EAM Operator GS–2/5 and EAM Supervisor GS–5/12 both in the GS–359–0 Series.

DESCRIPTION OF WORK

EAM planners plan or supervise the planning of the work processes and sequence of steps involved in recording and processing data by means of electric accounting machines. Assignments may include evaluation of electric accounting machine equipment, designing punch cards, developing wiring diagrams, or making machine feasibility studies.

EAM program supervisors manage organizational entities which are responsible for both machine operations and planning functions.

EXPERIENCE REQUIREMENTS

Except for the substitutions of planning experience or of education as provided below, all applicants must have had either general or machine experience in the amounts shown in the following tables.

Grade	Total experience (years)	General or machine experience (years)	Planning experience (years)
GS–5	3	3	0
GS–7	4	3	1
GS–9	5	3	2
GS–11 and 12	6	3	3

General experience is experience in administrative, professional, investigative, technical, or other responsible work which has prepared the applicant to enter this type of work. Experience of a routine clerical nature is not qualifying.

Machine experience is experience which provided knowledge of the uses, purposes, and capacities of electric accounting machines and their operation to achieve the desired ends. The experience must have required the ability to perform simple planning work, such as the performance, without detailed and precise instructions, of the setup wiring and machine operations to complete an assigned project. An illustrative example of experience which may have provided this experience is machine operation which also involved responsibility for determining which machines are required, what the sequence of steps should be, and for devising or modifying wiring diagrams or, without diagrams, for wiring or modifying the wiring of panels.

Planning experience is responsible experience in setting up procedures and work steps for all mechanical and clerical operations involved in electric accounting machine or digital computer projects. Included are such functions as devising work steps and their sequence, designing punch card forms, devising reporting schedules and report forms, developing work flow charts, making machine feasibility studies, evaluating electric accounting machine equipment and designing wiring diagrams. Experience which included supervision of machine operation *and* planning functions or the supervision of machine operation functions *and* nonsupervisory performance of the planning function is qualifying as planning experience. Excess planning experience may be substituted for general experience or machine experience.

SUPERVISORY POSITIONS

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

Quality of experience.—For all types of positions covered by this standard at grades GS–7 through GS–11, at least 6 months of the required planning experience must have been at a level of difficulty equivalent to the next lower grade in the Federal Service, or 1 year must have been equivalent to the second lower grade. For all positions at GS–12, 1 year of the required planning experience must have been equivalent to the next lower grade in the Federal Service. For positions at any grade level the amount of experience will not in itself be accepted as proof of qualifications. The applicant's record of ex-

perience and training must show the ability to perform the duties of the positions.

SUBSTITUTION OF EDUCATION

Study successfully completed in a residence school above high school level may be substituted for the required general experience on the basis of 1 academic year of education for 9 months of experience up to a maximum of 3 years of experience.

BASIS OF RATING

Applicants at all grade levels will be rated on an evaluation of the quality and extent of their experience, education, or training.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the positions without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standard for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

TELEPHONE OPERATING SERIES[1]

For Positions in the Telephone Operating Occupation GS–382–1/7

DESCRIPTION OF WORK

Telephone operators place and receive local and long-distance calls through cord-type switchboards or through console-type remote control switchboard equipment. They use directories and related reference information in completing calls or providing information services. Operators also perform related clerical work, such as maintaining records of calls placed or received, computing charges for calls, or similar duties.

Telephone supervisors schedule and direct the work of a group of telephone operators, provide training and assistance to operators, and perform related administrative duties.

EXPERIENCE, EDUCATION, AND OTHER REQUIREMENTS

For grade GS–1, no experience, training, education, or written test is required. The only requirement is that applicants must be interested in and willing to perform simple and repetitive telephone operator work and show evidence of likelihood of success in operating a telephone switchboard.

For grade GS–2, applicants must have had 6 months of experience as a telephone operator in a central telephone office or on a switchboard in a business or Government establishment or in a private branch exchange, provided that such experience was gained on a switchboard that had at least 25 working lines. This experience may have been gained in operating either a multiple or non-multiple cord-type switchboard or a "console" automatic electric remote control switchboard, also known as a key-sending cordless switchboard, associated with the dial system and having essentially the same capabilities as a cord-type switchboard.

For grade GS–3, applicants must have had at least 1 year of telephone operating experience as described above, which included some experience in performing long-distance or information operating duties.

For grade GS–4, applicants must have had at least 2 years of telephone operating experience, of which 1 year involved substantial responsibility for (1) placing a variety of special long-distance calls (e.g., conference calls, collect calls, appointment calls, etc.) over varied circuits or routings, or (2) performing information operator work which required a knowledge of the organizational units and major functions of the organization served.

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook.

Substitutions for the required operator experience

A. Graduation from high school may be substituted for a maximum of 6 months of the required experience for GS–2 only.

B. Successful completion of a 6-month training course as a blind telephone operator at one of the Rehabilitation Centers approved by the Vocational Rehabilitation Administration, Department of Health, Education, and Welfare (provided that such training was acquired on a "live" switchboard) may be substituted for 6 months of the required operator experience for all levels.

C. Successful completion of other telephone operator training, such as training under manpower development programs, may be substituted for up to a maximum of 6 months of operator experience, depending on the nature and extent of the training received.

Nonqualifying experience

Experience in operating a cordless telephone switchboard of the limited capacity type (also, occasionally, referred to as a "console") which is used for interoffice communications or where the number of incoming lines is limited to five or less, or where the equipment capabilities are

[1] This standard supersedes the standard for this series which was issued in June 1965.

limited to routing and transferring incoming calls, will not be accepted as qualifying.

Furthermore, experience which has been gained solely in the operation of "information" desks (e.g., Turret Type, Flat-Top Type or Sloping-Front Type) where the operator does *not* handle the full range of calls or where the full range of skills necessary to operate a switchboard is *not* required, will not be accepted as qualifying. Typically, such information and/or service desks are limited in that the operators are restricted to answering an information or intercept call by switching a lever key; flashing a switchboard operator for assistance; or verifying an incoming local call.

WRITTEN TESTS

Applicants for positions at grades GS-2 and GS-3 will be required to pass a written test of clerical abilities (e.g., alphabetizing, basic arithmetic computations), verbal abilities, and accuracy in hearing and remembering numbers.

The tests should be waived for inservice placement actions but may not be waived for appointments outside the register.

BASIS OF RATING

Competitors for all positions will be rated on a scale of 100. The basis of rating is:

For grade GS-1, an evaluation of the applicant's willingness to do simple and repetitive telephone operator work; his dependability; and his ability to work safely.

For grade GS-2, written test scores.

For grade GS-3, written test scores combined with an evaluation of experience and training.

For grade GS-4, an evaluation of the quality and extent of operator experience and training.

SELECTIVE PLACEMENT

For positions involving work on very large switchboards, appointments may be restricted to persons who have at least 6 months of experience in (1) a large central telephone office (i.e., one serving a population of 1000 or more) or (2) a very large and active private switchboard (i.e., having 500 or more active lines). In addition, some positions may be restricted to persons with experience on the type of equipment (cord-type or cordless console) used in the position to be filled.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 6, except that a few positions may exist which are suitable for the blind (providing suitable equipment is available), and except that ability to hear the conversational voice, without the use of a hearing aid, is required. In addition, applicants must possess emotional and mental stability.

GUIDES FOR EVALUATING CANDIDATES FOR INSERVICE PLACEMENT

For entry-level positions, candidates should be evaluated on the basis of their interest in telephone operator work (including their willingness to work in a confining position and, as appropriate, to accept shift assignments), dependability, clarity of speech, courtesy, and tact. These elements can best be measured through oral interviews. If an interview is not feasible, reference checks should include an appraisal of these characteristics.

In evaluating operator experience, consider:

(1) the extent to which the candidate's experience demonstrated competence in handling a variety of calls, including long-distance calls over different types of circuits; completing conference, collect, appointment or other special calls; determining alternate routings; observing priority call procedures; tracing individuals; contacting appropriate personnel in emergencies; or similar special services;

(2) the nature and extent of information services performed, considering the degree of knowledge of organizational structure, key personnel and functions

required, the variety and complexity of the activities served, and the extent of personal responsibility versus reference to other sources of information;

(3) speed and efficiency in successfully completing calls;

(4) dependability;

(5) courtesy, tact, and helpfulness in assisting callers.

The relative weight of (1) and (2) above should reflect the requirements of the position to be filled. Greater credit should be given for recent experience; experience which is most directly related to the work of the position in terms of the types of calls handled and services provided; and experience involving a wide variety of calls and operating situations. For positions in which information operator duties are significant, additional credit may be given for other types of experience which provided a good knowledge of the organization served.

The information needed to evaluate these elements can normally be obtained through a review of the candidate's work history and performance appraisals. However, it may be desirable to supplement these methods by oral interviews or contacts with telephone users to evaluate such aspects as courtesy and helpfulness, and knowledge of the organization in properly referring calls.

COMMUNICATION MANAGEMENT SERIES GS-391 (p. 1)

For Positions in the Communications Management Occupation GS-391-11/15

Communications Manager

Communications Management Specialist

Supervisory Communications Management Specialist

DESCRIPTION OF WORK

Communications Managers direct the operation of radio, telephone, teletypewriter, data transmission, and/or other types of communications services. They have substantial management responsibility for evaluating requirements for communications services; determining the organization, staffing, facilities and equipment needed; and evaluating and directing actions to improve the effectiveness of the communications operations supervised.

Communications Management Specialists perform staff planning and management work such as evaluating current and future communications needs and establishing overall requirements and planning objectives; evaluating the overall effectiveness of communications systems and operations; planning, scheduling, and coordinating the actions required to implement new communications systems; or similar broad communications management functions.

EXPERIENCE REQUIREMENTS

Except for the substitutions provided below, applicants for all positions must have had a total of 6 years of general and specialized experience of which at least 3 years must be *specialized* experience.

General experience

General experience is (*a*) responsible professional, technical, administrative, or supervisory experience which demonstrates ability to analyze administrative and operational problems and develop practical solutions, ability to plan and coordinate the work of others, and skill in communicating and maintaining effective work relations with personnel representing varied backgrounds and points of view; or (*b*) experience which has provided knowledge of the characteristics, capabilities, operational and support requirements, and costs of communications services.

Specialized experience

Specialized experience is progressively responsible experience in planning, administering, or managing communications services. Such experience may have been gained in managing communications operations, in planning and administering communications services for a Government or commercial establishment, or in commercial utilities or consulting firms which provide advisory services in determining communications needs and planning the systems and services to meet those needs. Creditable specialized experience must have included substantial responsibility for one or more of such functions as:

(a) Evaluating the communications needs of users and establishing the basic methods and operational capabilities required to meet those needs;

(b) Advising using activities on the types of communications services available and the relative advantages, limitations, and costs of alternate methods of meeting needs;

(c) Preparing or reviewing program planning for the development, expansion or modification of communications services;

(d) Scheduling and coordinating the actions required to install, staff, and maintain communications services;

(e) Evaluating the effectiveness of communications services and recommending or directing actions to improve the quality and efficiency of services;

(f) Supervising communications operations when such work included responsibility for developing plans and methods for improving services or meeting new requirements, and for justifying and administering the resources required to provide adequate services.

The applicant's *total* experience and training must demonstrate:

(a) Broad knowledges of the basic char-

acteristics, capabilities, operational and support requirements, and costs of communications systems, equipment and services;

(b) Ability to understand and evaluate the communications needs of users and to relate those needs to policies and priorities, systems capabilities, operating practices and procedures, equipment and staffing requirements, costs and funding, and supporting services required.

(c) Ability to guide and coordinate the efforts of users, operating personnel, technical specialists, and support personnel in planning, implementing, or improving services;

(d) Judgment in weighing requirements against capabilities and resources, and in correlating varied technical and administrative considerations in determining the most efficient means of providing required services; and

(e) Ability to establish and maintain cooperative work relationships and to communicate effectively with others, both orally and in writing.

QUALITY OF EXPERIENCE

Applicants for positions at grade GS–11 must have at least 6 months of experience comparable to the next lower grade in the Federal service or at least 1 year of experience comparable to the second lower grade. Applicants for positions at GS–12 and above must have at least 1 year of experience comparable to the next lower grade. At all grades, this experience must clearly demonstrate that the applicant possesses the knowledges and abilities required for successful performance of the duties of the position.

Length of experience beyond the minimum requirements is of less importance than the quality of the experience. The quality of experience is reflected in the degree of management responsibility and independence of action, the scope and complexity of the communications services involved, the breadth of communications and management knowledges acquired, and evidence of progressive development.

SUPERVISORY POSITIONS

For Communications Manager and Supervisory Communications Management Specialist positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook.

SELECTIVE PLACEMENT

For positions which require special competence in one or more specific types of communications systems or operations, the applicant's total experience and training must demonstrate the pertinent communications knowledges.

PERSONAL INTERVIEW

Prior to appointment, applicants may be required to appear for an interview to give evidence of the degree to which they possess the personal qualities needed in communications management work.

EDUCATIONAL SUBSTITUTIONS

1. Undergraduate education in a resident college or university may be substituted for *general* experience on the basis of 1 academic year of study for 9 months of experience, *provided* such study included an average of 6 semester hours a year in one or a combination of the following subjects: electrical or electronic engineering, mathematics, statistics, physical sciences, industrial engineering, public utilities, economics, business administration or industrial management.

2. Graduate education in the fields of electrical, electronic, or industrial engineering, public utilities, business administration, or industrial management may be substituted for a maximum of 2 years of *specialized* experience on the basis of:

(a) one full academic year* of graduate education for 1 year of specialized experience;

(b) completion of all requirements for a master's or equivalent degree, or 2 full academic years of graduate education, for 2 years of specialized experience.

3. Communications/electronics training in technical institutes above the high school level or in armed forces schools which included advanced instruction in addition to basic courses, may be substituted for *general* experience on a month-for-month basis.

BASIS OF RATING

No written test is required.

Applicants will be rated on the basis of the extent and quality of their specialized experience and the degree to which their total experience and training demonstrate the knowledges and abilities required for successful performance at the grade level for which they are being rated. Ratings will be based on information in the applicant's Personal Qualification Statement and any additional evidence acquired by the Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

GUIDES FOR THE EVALUATION OF CANDIDATES FOR INSERVICE PLACEMENT

1. The description of experience identifies the basic knowledges and abilities required in communications management work. These should be refined and supplemented to reflect the specific knowledges and abilities important to successful performance in the position to be filled.

2. In evaluating the level and quality of experience, consideration should be given to such factors as:

- The progression of experience, with emphasis on the highest level of competence demonstrated;
- The breath of knowledges of modern communications systems and operations acquired;
- The scope of the management functions performed;
- The relative independence of action and responsibility for decisions;
- The scope and complexity of the communications services with which the candidate was directly concerned;
- The degree to which the experience and training are directly related to the duties to be performed.

3. Particular emphasis should be placed on experience which has demonstrated:

- *Ability to work effectively with and coordinate the action of others.*—Consider the ability to work effectively with people of varied backgrounds and interests, skill in identifying and resolving conflicting views, and ability to persuade others to a course of action or to motivate them to extra effort.
- *Ability to analyze varied considerations and arrive at sound conclusions.*—Consider the intensity of the analysis required in terms of the difficulty of defining the basic issues, the different factors requiring consideration, and the extent to which precedents or established policies guided the analysis and conclusions developed; and the degree to which conclusions and recommendations adequately solve the problem, are clearly presented and are well supported.
- *Ability to make decisions and to follow through on their implementation.*—Consider the degree of judgment involved in weighing alternatives, the consequences of

*Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.

error, the willingness to accept responsibility for action, and the degree of planning, coordination, and persuasion required to implement the decision.

4. Supervisory appraisals, qualifications inquiries, and oral interviews are useful techniques for measuring the extent to which candidates possess the required knowledges and abilities. See FPM Supplement 335-1, Evaluation of Employees for Promotion and Internal Placement, for additional information on these and other evaluation methods.

GENERAL COMMUNICATIONS SERIES[1]

For Positions in the General Communications Occupation GS–392–4/11

Communications Technician

Communications Control Technician

Note: Operator positions in this series are covered by the qualification standard for Communications Equipment Operator, GS–300.

DESCRIPTION OF WORK

Communications Technicians perform one or more communications support functions which require specialized technical knowledges of communications equipment and components, and the application of a body of governing regulations and procedures. Communications technicians typically perform such work as: ordering communications equipment and services, requiring knowledges of the circuitry and equipment components required and the application of tariffs and procurement regulations; maintaining records and layouts showing the type, number and location of communications equipment, conducting equipment inventories and surveys of equipment needs, and applying prescribed criteria to determine the types and number of equipments required by the activity; or similar types of technical communications support functions.

Communications Control Technicians control the radio and wire circuits of a communications facility. They establish and disestablish circuits to meet operational needs. They monitor circuit quality and radio frequencies through the use of a variety of test equipment (e.g., ammeters, voltmeters, audio level meters, oscilloscopes, audio frequency signal generators, distortion analyzers, etc.). They perform troubleshooting checks to isolate problems, patch in circuits and standby equipment or make frequency changes to minimize the disruption of communications, and coordinate circuit maintenance actions.

[1] This standard supersedes the standard for this series which was issued in October 1961.

EXPERIENCE REQUIREMENTS

Except for the substitutions authorized below, applicants must have had the kind and amount of experience shown in the table and described in the following paragraphs.

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–4	2	0	2
GS–5	3	0	3
GS–6	3	1	4
GS–7	3	2	5
GS–8 and above	3	3	6

1. For *Communications Technician* positions:

General experience is experience which provided a general knowledge of the types of communications equipment involved, including a familiarity with the terminology and nomenclature associated with that equipment and its components. Such experience may have been gained in communications operations; maintenance or installation of communications equipment; responsible communications clerical work in maintaining technical records, processing requests for communications services, etc.; or similar work which provided the required communications knowledges.

Specialized experience is progressively responsible experience in the line of work of the position to be filled, or in closely related communications support functions which have demonstrated the technical and administrative knowledges and abilities required for successful performance of the work.

2. For *Communications Control Technician* positions:

General experience is experience in radio or wire communications operations or maintenance which has provided a good working knowledge of circuit characteristics and of the methods for establishing, disestablishing, testing and modifying the circuits used.

Specialized experience is progressively responsible experience in the technical control of radio or wire communications circuits or respon-

sible administrative or supervisory experience in a large radio or wire communications facility which included responsibility for obtaining the maximum use and efficiency of radio and wire circuits and the maintenance of such circuits with regard to operational and facilities requirements.

QUALITY OF EXPERIENCE

For positions at any grade, the required amount of experience in itself will not be accepted as proof of qualification. The candidate's record of experience and training must show that he has the ability to perform the duties of the position. In addition, applicants must have had at least 1 year of experience at a level of difficulty comparable to the next lower grade in the Federal service or at least 2 years of experience comparable to the second lower grade.

EDUCATIONAL SUBSTITUTIONS

1. Successfully completed study in a resident school above the high school level in electrical, electronic or radio engineering may be substituted for general experience as follows:

(a) *for the first 2 years of general experience*, at the rate of 1 academic year of study for 1 year of experience;
(b) *for the third year of general experience*, at the rate of 1 academic year of study for 6 months of experience.

2. Pertinent communications/electronics training received in the armed forces or in technical institutes may be substituted for general experience on a month-for-month basis.

3. No substitution may be made for the required specialized experience.

BASIS OF RATING

Competitors for all positions will be rated on a scale of 100. Rankings will be made on the basis of the quality and extent of experience and training relevant to the duties of the position.

WRITTEN TEST

No written test is required.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

GUIDES FOR EVALUATING CANDIDATES FOR INSERVICE PLACEMENT

The evaluation of candidates should be keyed to the requirements of the position to be filled. Operating officials should participate in defining specific knowledges and abilities required and their relative importance in assuring effective performance. In addition to technical knowledges, such factors as ability to interpret and apply regulations and procedures, skill in establishing personal contacts, or ability to prepare written reports and technical correspondence may be very significant elements in some positions.

Appraisal forms developed to show the knowledges, skills and abilities required, their relative importance in the job, and an evaluation of the extent to which the candidate possesses each characteristic serve as useful evaluation tools. Such forms may be used to obtain appraisals from individuals familiar with the candidate's abilities, to record the results of oral interviews, or to summarize data gathered from all sources in the evaluation process.

COMMUNICATIONS SPECIALIST SERIES[1]

For Positions in the Communications Specialist Occupation, GS-392-5/15

Communications Specialist

DESCRIPTION OF WORK

Communications Specialists perform technical and analytical work related to the development and improvement of communications systems and procedures. They are concerned with such matters as: (1) analyzing traffic loads and quality of service to evaluate operating efficiency or to determine the capabilities required to provide needed services; (2) determining the most effective equipment and circuit configurations for networks and systems; (3) developing improved communications methods and procedures; or (4) similar technical work requiring specialized knowledges of the functional and operational characteristics of one or more types of communications systems, and the application of communications principles, concepts, policies, practices, and techniques.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Except for the substitutions authorized below, applicants must have had the amount and quality of experience specified in the table and described in the following paragraphs.

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-5	3	0	3
GS-7	3	1	4
GS-9	3	2	5
GS-11/15	3	3	6

General experience

General experience is (*a*) Administrative, technical, or professional experience which demonstrates a good knowledge of the functional and operational requirements and capabilities of one or more types of communications systems; *or* (*b*) experience in operating, installing, or maintaining communications equipment; compiling traffic data and operational reports; scheduling and controlling circuits; or other responsible work in providing or controlling communications services. Such experience must have demonstrated a working knowledge of basic communications principles, techniques and practices and of the interrelated functional components and operational procedures of one or more communications systems.

(*Note:* Work which does not demonstrate these knowledges is not acceptable qualifying experience. For example:

(a) clerical or administrative experience, such as computing charges for communications services or maintaining various communications records, is not qualifying unless such work requires a knowledge of the communications processes and techniques involved;

(b) communications equipment maintenance and installation experience is not qualifying unless such work requires an understanding of system operations and procedures;

(c) communications equipment operation experience is not qualifying unless such work requires knowledge of the functional components of the system and a general understanding of the principles and techniques involved).

Specialized experience

Specialized experience is progressively responsible experience in the pertinent field of communications which demonstrates the following knowledges and abilities to the degree required for successful performance at the grade level for which application is made:

1. Knowledge of one or more types of communications systems, including:

   (a) an understanding of the basic principles and concepts underlying the system design;

[1] This standard supersedes the standard for this series which was issued in November 1962.

(b) a knowledge of the operational characteristics and capabilities of the equipment and transmission media involved;

(c) an understanding of the functional interrelationships of component parts of the system;

(d) a knowledge of message handling and operating practices and procedures; and

(e) an understanding of the routing and flow of traffic through the system.

2. Knowledge of specialized analytical techniques for measuring and evaluating traffic loads and communications service requirements and capabilities.
3. Knowledge of current developments and trends in communications concepts and technology.
4. Ability to assemble, correlate, and interpret a variety of technical data; and to analyze the implications, project trends, and apply conclusions in devising solutions to problems.
5. Ability to interpret pertinent policies and regulations and to adapt guides and precedents to varying situations.
6. Ability to plan and coordinate various phases of a study and to visualize the effect of actions on all interrelated processes.
7. Ability to write clear and concise reports, instructions and procedures, technical correspondence, or similar material.
8. Ability to establish effective personal contacts and cooperative work relationships with personnel of varied backgrounds and interests.

Specialized experience can be gained in such work as:

1. Determining the volume and distribution of traffic within a communications system for traffic analysis purposes.
2. Designing configurations of equipment, circuits, personnel, and facilities within a communications network or system to assure faster and more economical service.
3. Devising handling and operating procedures to effect more rapid and efficient processing of communications.
4. Providing communications systems design, facilities design, and operating advice for a communications system or program.
5. Planning and designing communications networks connecting various diverse localities for use by governmental or commercial establishments.
6. Coordinating the integrated use of telephone, teletypewriter, data transmission, radio, and other media of communications where economical and practical; and integrating communications equipment systems and communications network routing to provide effective, efficient, and economical communications services.

Specialized experience may be substituted for general experience on a month-for-month basis.

QUALITY OF EXPERIENCE

Applicants for positions at grades GS–11 and below must have had at least 1 year of experience comparable in difficulty to the second lower grade in the Federal service or 6 months of experience comparable to the next lower grade.

Applicants for positions at grades GS–12 and above must have had at least 1 year of experience comparable to the next lower grade. This experience must have demonstrated a thorough technical knowledge of the pertinent field of communications. In addition, the following characteristics must be demonstrated to a progressively greater degree for the higher level positions:

(1) Ability to plan and coordinate broad projects with numerous interrelated phases;

(2) Originality in devising solutions to complex and unusual communications problems;

(3) Initiative in determining and accomplishing the actions required to meet broad objectives; and

(4) Persuasiveness and skill in negotiating controversial issues.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

SELECTIVE PLACEMENT

Positions in this occupation vary substantially in the nature of work assignments and the specific knowledges required of various specialized areas within the communications field. The work may require experience pertaining to a particular type of communications system (e.g., telephone, radio, data transmission), certain communications processes (e.g., terminal operations, switching systems, one or more types of transmission systems), a specialized program area (e.g., radio frequency management, communications security requirements), or a broad functional area (e.g., traffic analysis of varied systems). Therefore, selective placement may be appropriate in many cases. In such cases, placement may be limited to those candidates whose records show evidence of the required capabilities.

EDUCATIONAL SUBSTITUTIONS

1. Undergraduate education in a resident college or university may be substituted for *general* experience at the rate of 1 academic year of study for 9 months of general experience, *provided* such study included an average of 6 semester hours a year in one or a combination of the following subjects: Electric or electronic engineering, mathematics, statistics, economics, physics, chemistry, industrial engineering, or public utilities.
2. Graduate education in one of the fields listed above may be substituted for a *maximum of 1 year of specialized experience* on the basis of 1 full academic year of graduate education for 1 year of specialized experience. (Part-time graduate education is also acceptable at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.)
3. The Superior Academic Achievement Standard in section III, part II, Instructions to Users, of this handbook is applicable at grade GS–7.
4. Communications/electronics training in technical institutes above the high school level or in armed forces schools which includes advanced instruction in addition to basic courses may be substituted for *general* experience on a month-for-month basis.

WRITTEN TEST

A written test is required at grades GS–5 and GS–7. This written test should be waived for in-service placement actions but may not be waived for appointment outside the register.

No written test is required for grades above GS–7.

BASIS OF RATING

Competitors for all positions will be rated on a scale of 100. Rankings are made:

1. *For competitive appointments at grades GS–5 and GS–7*, on the basis of the written test.
2. *For competitive appointments above GS–7 and for inservice placement actions at all grades*, on the basis of the quality and extent of experience and training relevant to the duties of the position.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

GUIDES FOR EVALUATING CANDIDATES FOR INSERVICE PLACEMENT ACTIONS

The discussion of experience requirements identifies the knowledges and abilities required. Those elements, modified to reflect the specific

knowledges required in the position to be filled, should be used as the basis for evaluating candidates.

A review of the candidate's experience and training for evidence of possession of the required technical knowledges should be supplemented by other techniques which help to measure the personal qualities and abilities required in the work.

Supervisory appraisals should include an evaluation of the degree to which the candidate possesses these required skills and abilities. Such evaluations should be directed to strengths or weaknesses demonstrated in specific work assignments as well as an overall appraisal of ability and potential.

A review of work products, in the form of reports of studies made or similar material, can provide evidence of planning and analytical abilities; judgment in interpreting data, applying guidelines, and forming conclusions, etc.; as well as the ability to present information effectively in writing.

Oral interviews are effective in evaluating skill in personal relationships; ability to present and defend ideas clearly and logically; and such qualities as perception, objectivity, and persuasiveness.

General Biological Science Series
GS-5/15

DESCRIPTION OF WORK

Professional work in biology, agriculture, or related natural resource management involving either:

(1) A combination of several professional fields with none predominant; *or*
(2) A specialized professional field not readily identified with other established occupational series.

BASIC REQUIREMENTS FOR ALL GRADES

Candidates must meet the basic requirements specified under either A or B below, or they must have had any time equivalent combination of A and B.

A. Successful completion of a full 4-year course of study leading to a bachelor's or higher degree from an accredited college or university with major study in biological sciences, agriculture, natural resource management, or allied disciplines pertinent to the work of the position to be filled.
B. Four years of successful experience which demonstrates that the candidate has acquired an understanding of the fundamental principles and techniques of one or more biological science, agriculture, or natural resource disciplines equivalent to that which would have been acquired through completion of a 4-year course of study as described in paragraph A above.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in an appropriate field, such as biological science, agriculture, or forestry, directly related to the position to be filled.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basis requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.

GS-11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-11 level after a short orientation period.
GS-12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS-7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS-9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

CREATIVE AND OUTSTANDING RESEARCH

Candidates who furnish positive evidence that they have performed highly creative or outstanding research that has led or can lead to major advances in a specific area of research, to a major advance in the discipline or field of science involved, or to major advances in science in general, may be rated on this basis for highly demanding research positions requiring similar abilities. Under these circumstances, the candidate may be rated eligible for the next higher grade above that for which he would normally be rated, provided he has not been rated eligible at this grade on the basis of meeting the graduate study requirements described above. To receive this rating, the work must have been creative in the sense that it developed a basic principle, product, concept, method, approach, or technique, or provided a body of basic information that opened the way for a major advance in the discipline or field of science involved, or to advances in science in general, by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of science in a major area.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

BASIS OF RATING

No written test is required. Candidates will be rated on the basis of education, training, ex-

perience, and personal qualifications in relation to the requirements of the specific positions to be filled. Ratings will be based on information furnished in application forms and any additional information that may be obtained from confidential inquiries to supervisors, associates, and other references.

ADAPTATION OF STANDARD TO POSITIONS TO BE FILLED

Positions covered by this standard vary widely in functions, organizational settings, and combinations of disciplines. Because of the diversity of positions and the diversity of acceptable qualifications, this standard needs to be adapted and interpreted in terms of the knowledges and abilities required for the specific position to be filled. Thus for positions in a particular specialty, the acceptable education and experience should be limited to that which is appropriate for the field of work. This may be done either in an announcement for specific types of positions or by selective consideration of eligibles from registers for related disciplines.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 4. In addition, some positions may require the ability to distinguish either basic or shades of color.

Microbiologist GS-5/15

DESCRIPTION OF WORK

Microbiologists perform professional and scientific work in connection with the identification, culture, study, control, and use of microorganisms. Most of the work is performed in a laboratory environment and is generally concerned with research and development, regulatory or public health, or medical activities. The nature of the work may vary considerably with the assignment, some dealing primarily with specific kinds of microorganisms, such as the protozoa, microparasites, algae, fungi, viruses, rickettsiae, and similar microscopic and submicroscopic forms; some being concerned with a specific field or area of work, such as immunology, serology, physiology, genetics, taxonomy, and cytology as these fields relate to microbiology; some placing emphasis on microorganisms as pathogenic and immunizing agents; and some relating to the development and use of specific kinds of methodologies and techniques or to the use of organisms in agricultural, industrial, medical, sanitary, and similar fields where the science of microbiology is applied.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements.—Candidates must show that they have successfully completed one of the following:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in microbiology, biology, or chemistry. Such study must have included: (1) at least 30 semester hours in biological science of which 20 hours are in microbiology and related subjects oriented toward the study of microorganisms; and (2) 20 semester hours in the physical and mathematical sciences combining course work in organic chemistry or biochemistry, physics, and college algebra, or their equivalent.

B. A total of (1) at least 30 semester hours in the biological sciences of which 20 semester hours are in microbiology and related subjects oriented toward the study of microorganisms; (2) 20 semester hours in the physical and mathematical sciences, as described in paragraph A; plus (3) additional appropriate experience or education which, when combined with the completed study, will total 4 years of education and experience. Such combination must have provided professional and technical knowledge comparable to that normally acquired through the successful completion of the 4-year course of study described in paragraph A.

Candidates for positions involving highly technical research, development, or similarly complex scientific functions must have completed the full 4-year course of study described in paragraph A.

QUALIFYING COURSE-WORK IN MICROBIOLOGY AND BACTERIOLOGY

This standard considers microbiology to be a broad field of science encompassing a number of scientific disciplines or areas of science, the fields in which this science is applied, and related fields where the work is concerned with or involves microbiology. The scientific disciplines or areas of this science include bacteriology, immunology, serology, algology, mycology, parasitology, protozoology, rickettsiology, tissue culture, virology, and similar disciplines or areas of science. The applied fields include food, dairy, soil, industrial, public health and agricultural microbiology, and similar areas in which microbiology is applied. Related fields include taxonomy and systematics, plant or animal physiology or pathology, epidemiology, ecology, and similar disciplines or areas of science *where the work is directly related or applies to microbiology*. Except where the course-work deals with a limited and specific segment of the science, where it might be limited in usefulness, most of the work, including that dealing with the development and use of microbiological methods, procedures, and techniques, is qualifying. In interpreting the sub-

stantive value of the course-work, partial or total credit may be given for courses in related fields, depending on the degree to which it is related to microbiological work.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in (*a*) the general field of microbiology, (*b*) one of the specialized areas or applied fields of microbiology, or (*c*) a field of science directly related and applicable to microbiological work or microbiological research.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS-11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-11 level after a short orientation period.
GS-12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level.

c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

a. Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

b. The experience requirement for grade GS–14 is met in full when the applicant establishes positive evidence (1) that he is a Fellow of the American Academy of Microbiology in good standing, or (2) that he is certified by the American Board of Microbiology in one of its approved specialty fields of microbiology.

QUALITY OF EXPERIENCE REQUIRED

For positions at GS–9 which involve a substantial amount of work in a specific specialized area or applied field of microbiology, at least 6 months of the experience must either have been in the appropriate area of specialization or applied field of microbiology, or have direct application in the area for which he is being considered.

For the GS–11 and higher grades of such specialized positions, at least 1 year of the experience must have been sufficiently specialized to insure adequate familiarity with the area of specialization or applied field of microbiology involved.

For all grades and kinds of positions, in order to meet the minimum requirements, applicants must show that their total background of education, training, and experience has given them the specific knowledges, skills, and abilities needed to perform the duties of the position for which they are being considered, considering that they will be given a reasonable amount of orientation on the job.

QUALIFYING FIELDS OF GRADUATE STUDY

For these positions, as appropriate, the study is generally considered to be fully qualifying if it placed major emphasis on such fields as microbiology or bacteriology, *or* on specific areas of study such as mycology, algology, protozoology, parasitology, immunology, serology, microbial genetics, or soil microbiology, *or* dealt with specific applied fields of microbiology, such as food technology, production processes, industrial fermentation, pollution, etc. Graduate study in related fields, such as biochemistry, animal or plant physiology, genetics, plant pathology, insect disease control, etc., may also be pertinent, provided it *involves* or has *direct application* to microbiological work. The value of such study is judged on the basis of whether it was in a major or minor field of study, its contribution to the applicant's total background of experience and training, and its value in relation to the specific requirements of the position for which the applicant is being considered.

At the GS–13 and higher grades graduate study may not be substituted for the required year of experience equivalent in difficulty to that of the next lower grade.

CREATIVE OR OUTSTANDING RESEARCH

Where applicants show positive evidence that they have performed highly creative or outstanding research, which has led or can lead

to major advances in a specific area of research, or to a major advance in the field of microbiology, they may be rated on this basis for highly demanding research positions which require similar abilities in order to perform the work. Applicants who meet this criterion may be rated eligible for the next higher grade above that they would normally be rated, *provided* they have not been rated at this grade on the basis of meeting one of the graduate education requirements described above.

To receive this credit, the work must have been creative in the sense that it developed a basic principle, concept, method, approach, or technique (or provided a body of basic information) which opened the way for major advances in the field of microbiology by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of the science in a major area.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

QUALIFICATIONS INQUIRIES

For all grades of these positions, confidential inquiries, including contacts with the applicants' supervisors and associates or with other persons familiar with their qualifications, may be made to obtain further information about their technical, professional, scientific, and personal qualifications, and their character and suitability for these positions.

SELECTIVE PLACEMENT

As outlined under *Quality of Experience*, many positions in this series require highly specialized knowledges in one or more specific scientific areas or fields of microbiology, or the ability to apply highly specialized scientific techniques to problems peculiar to a specific type of research. Consideration may be restricted to eligibles meeting such specialized requirements.

WRITTEN TEST—BASIS OF RATING

No written test is required. Applicants' qualifications will be rated on a scale of 100, and will be evaluated on the basis of their education, training, and experience as shown in the application, and on corroborative evidence obtained by the Civil Service Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

BIOLOGICAL TECHNICIAN SERIES

Biological Aid GS-1/4

Biological Laboratory Technician GS-5/11

Biological Technician GS-5/11

Agricultural Research Technician GS-5/11

DESCRIPTION OF WORK

Biological aids and technicians work in biological and agricultural laboratories and field or experimental areas such as greenhouses, growth houses, hatcheries, wildlife refuges, etc. They provide technical support and assistance to professional personnel engaged in scientific and technical work in the biological and agricultural sciences. The duties of these positions vary with the specific type of assignment and with the grade of the position. In general, these positions operate within a narrow and limited segment of a specific field or require knowledge of particular methods, procedures, and techniques common to several fields of biological or agricultural sciences.

The following specializations are authorized for grades GS-4 and above: Microbiology, Laboratory Animal, Biochemistry, Plants, Husbandry, Insects, Soils, Fisheries and Wildlife. A detailed discussion of these specializations is included in the classification standard.

EXPERIENCE, TRAINING, AND OTHER REQUIREMENTS

Written test required for GS-2 and GS-3 positions

A written test of the abilities, aptitudes and skills necessary to learn and perform the duties of the job is required for all positions at GS-2 and GS-3. The written test is designed to measure verbal ability, clerical aptitude, fine finger dexterity, the ability to perform simple arithmetic operations, and the ability to follow oral instructions.

Candidates for positions at GS-1 must (1) pass the written test; or (2) present satisfactory evidence of successful completion of a full 4-year or senior high school curriculum; or (3) show 3 months of appropriate training or experience which has demonstrated aptitude for biology or agriculture.

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-1	0	0	0
GS-2	½	0	½
GS-3	1	0	1
GS-4	1½	½	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5
GS-8 and above	2	4	6

Experience required

Except as otherwise provided below, candidates must have the following length and type of experience:

General experience: For any grade level, this experience must have been acquired through work which has provided training and experience in the application of techniques and processes in the biological or agricultural sciences characteristic of laboratory work or work in field areas (outdoors) and/or experimental areas, such as greenhouses, barns, etc. Examples of acceptable work experience include laboratory helper; work performed in connection with animals, such as farming or work at zoos, animal hospitals, etc.; work performed in connection with the tilling of soil and the growing of crops, such as work performed on farms, or in orchards, greenhouses, etc.

Specialized experience: The specialized experience required must have been in the specialization (e.g., Microbiology, Laboratory Animal, Biochemistry, Plants, Husbandry, Insects, Soil, Fisheries, and Wildlife) for which application is made or must have evidenced skill in techniques peculiar to the specialization.

The specialized experience required for positions in the Plants, Husbandry, and Soils specializations must have been gained in a controlled work situation. Examples of this are responsible experience in a research activity or a control program; experience comparable to

that one would have working with a nursery firm which would have required the growing and maintenance of plants in a controlled environment; or experience comparable to that with a large dairy farm where production records, animal environment, and sanitary conditions were kept in accordance with modern dairy practice. Straight farming experience that was not performed in a controlled environment, or experience as a laborer who was not responsible for planning and scheduling his own work, and only performed assigned tasks would not qualify as specialized experience.

QUALITY OF EXPERIENCE

For eligibility *at grade GS–4*, candidates must have had at least 6 months of specialized experience comparable in level of difficulty and responsibility to the GS–3 level in the Federal service.

For eligibility *at grade GS–5*, candidates must have had at least 1 year of experience comparable in level of difficulty and responsibility to the GS–4 level in the Federal service, of which at least 6 months must have been specialized experience.

For eligibility *at grades GS–6 through GS–11*, at least 1 year of the required specialized experience must have been comparable in level of difficulty and responsibility to the next lower grade in the Federal service or 2 years comparable to the second lower grade in the Federal service.

For positions *at GS–9 and above*, at least 1 year of the specialized experience must be directly related to the duties of the specific position to be filled. Placement of technicians in positions at GS–9 and above, either through selective certification or noncompetitive action, must be predicated upon (1) a detailed job analysis of the knowledges, abilities, and skills required for the work, and (2) an itemized matching of the candidate's knowledges, abilities, and skills sufficient to assure satisfactory performance.

Specialized experience must have been characterized by progression in difficulty and responsibility or variety, or must have been supplemented by academic study so that there is substantial development of the candidate's skill, knowledge, and ability. For any grade, the required amount of experience and education will not, in itself, be accepted as proof of qualification for a position. The candidate's record of experience and education must demonstrate conclusively that he possesses the ability to perform completely the duties of the position.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

GS–2: Graduation from high school, in a curriculum which included 1 year of algebra or more advanced mathematics and two ½-year courses in other mathematics, natural or physical science, and/or technology may be substituted in full for the experience requirements at the GS–2 level. (High school education may not be substituted for any part of the experience requirements for GS–3 and above.)

GS–3: Successful completion of 1 year of post high school education in an accredited resident institution that included or was supplemented by at least 12 semester hours in any combination of scientific or technical subjects such as: biology, chemistry, statistics, entomology, animal husbandry, wildlife biology, forestry, botany, physics, agriculture, or mathematics, may be substituted for 1 year of experience, and meets in full the experience requirements at the GS–3 level.

GS–4: Two years of academic study as described for GS–3 above, which included or was supplemented by at least 24 semester hours in any combination of the subjects as listed, may be substituted for 2 years of experience including ½ year of specialized experience, and meets in full the experience requirements at the GS–4 level. At least 6 semester hours of the required course work must have been directly applicable

to the specialization for which application is made.

GS–5: Successful completion of all the requirements for the bachelor's degree which was in a major field of study appropriate to the specialization for which application is made, or which included 12 semester hours per year in pertinent courses →as described for GS–3 above,← may be substituted for 3 years of experience, including 1 year of specialized experience, and meets in full the experience requirements at the GS–5 level. → At least 6 semester hours of the required course work must have been directly applicable to the specialization for which application is made.←

The successful completion of a full course of at least 12 months in a school for clinical laboratory technicians may be substituted for 1 year of specialized experience required for positions in the Microbiology and Biochemistry specializations. For other positions such a course may be substituted for 1 year of general experience. Evidence of the course content and satisfactory completion of this training must be submitted. No substitutions will be permitted for partially completed technician courses of this type.

Education and training other than that outlined above, e.g., specialized training acquired while serving in the Armed Forces of the United States or in manpower development programs, will be allowed appropriate credit, depending upon its applicability and extent.

The maximum amount of experience for which education of any kind, including high school, may be substituted is 3 years.

EXTRA CREDIT FOR OUTSTANDING COMPETENCE (OPTIONAL PROVISION)

For positions at GS–9 and above, candidates who show positive evidence of outstanding competence and exceptional accomplishment may be rated eligible for the next higher grade than that for which they would otherwise qualify on the basis of the standard requirements of education and experience. Such candidates must demonstrate (*a*) outstanding competence based on a combination of factors such as subject-matter knowledge, creativity, specialized skills, progression of experience, and continuing growth through academic study; (*b*) a record of accomplishment which is recognized in the professional and technical community as exceptional and is marked by awards, published papers, citations, patents, or similar evidence; (*c*) proven ability to perform fully the work of the position to be filled; and (*d*) that they are clearly outstanding with respect to candidates with comparable backgrounds of experience and training.

SELECTIVE CERTIFICATION

Some positions in this series at grades GS–4 and above, which include responsibility for performing work in a laboratory environment, require skill in certain techniques which are more specific than the broad specializations provided in this series. For these positions, selective certification may be made according to a certain technique in lieu of certification according to the specializations provided. An example of a position for which selective certification according to a certain technique could be used is a position requiring skill in histological techniques. Candidates must have experience either in the specialization or in the specific techniques needed in the job being filled. Some positions in this series at GS–7 and above require very particular abilities and knowledge about a specific type of research or problem under study. In such cases, the required degree of specialization is much narrower than the broad specializations provided. (See the general discussion of the specialization pattern included in the classification standard.) In such instances, certification or noncompetitive selection may be limited to persons who show required specialized experience which is directly applicable to the position for which application is made.

BASIS OF RATING

Competitors for all positions will be rated on a scale of 100. The basis of rating will be:

For grade GS–1: An evaluation of experience and training.

For grades GS–2 and GS–3: Written test score.

For grades GS–4 and above: An evaluation of training and experience.

The following knowledges, abilities, and personal characteristics are required for successful performance of aid and technician duties at GS–4 and above. They will be used as rating factors in the evaluation of each applicant's experience. All of these knowledges, abilities, and personal characteristics are not required by every technician position, nor will they be possessed by every eligible candidate to the same degree. All applicants will be evaluated and ranked according to the degree to which they possess the knowledges, abilities, and personal characteristics required by the position applied for. This evaluation and ranking will be based on the scope and quality of each candidate's experience, education, knowledges, abilities, and personal characteristics and not on length of experience. In evaluating the candidate's experience and training, attention should be given to the following factors:

1. Technical knowledge in one or more biological or agricultural sciences.

2. Skill in using laboratory equipment and making laboratory tests. (This is a factor only for positions in the laboratory environment.)

3. Ability to work under controlled conditions; to follow instructions or a plan; to keep accurate records; to make simple computations accurately, such as percentages; and to write reports.

4. Ability to make accurate observations, notice the unusual or abnormal.

5. Ability to work independently for long periods of time without supervision, to plan work from day to day on the basis of general guidelines.

6. Ability to make constructive suggestions for modification or improvement of methods, procedures, plans, techniques, equipment, or apparatus.

7. Technical knowledge and ability to plan activities within a specialized area of work under directions giving only general objectives. (This is a factor only at the higher grade levels.)

8. Initiative and willingness to accept responsibility.

9. For positions requiring direction of the work of others, ability to coordinate and supervise the work of other biological technicians or laborers.

Candidates for biological technician positions at GS–4 and above will be rated on a scale of 100 on the quality of their experience and training as related to the duties of the position. Such ratings will be based upon an evaluation of the candidate's education, experience, knowledges, abilities, and personal characteristics as outlined in their applications and upon any additional evidence received by the Civil Service Commission. The amount of experience will not, in itself, be accepted as proof of their qualifications. Candidates should give a clear and complete description of their experience and training and the projects they have worked on that show their possession of the required knowledges, abilities, and personal qualities for biological technician positions.

CONFIDENTIAL INQUIRIES—ALL POSITIONS

Confidential inquiries may be made of persons who are qualified to evaluate the individual candidates for these positions as an additional means of determining whether the candidate's experience is of the quality sought. References will be asked to evaluate candidates on characteristics necessary for job success in these positions. Candidates will be rated ineligible where information is received which indicates that the candidate does not possess the necessary qualifications.

(TS 94)
November 1965
Reprinted without change October 1976 (TS–160)

NONCOMPETITIVE ACTIONS

Written test

The test may be waived in noncompetitive actions, but not for appointments outside the register.

Credit for high school education

In noncompetitive actions at GS–2 and GS–3 successfully completed high school education may be credited in accordance with the "add-on" rule, Section 3–1(b), FPM Chapter 337.

GUIDES FOR APPRAISING CANDIDATES

A wide diversity of technical knowledges is required for positions in this series at grades GS–4 and above. It is important, therefore, in crediting "specialized" experience, or in substituting education for it, to be sure that the work situation or course work credited has provided practice and training in the knowledges and techniques required for the specialization for which the candidate is being considered.

For positions at grades GS–4 and above, in crediting college-level education offered in lieu of experience, that education which shows the greater number of credits earned in courses directly related to the specialization for which the candidate is being considered is the more valuable.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 16. In addition, the duties of most positions require the ability to distinguish either basic or shades of colors. However, there may be a few positions which do not require these abilities and candidates with defective color vision will receive consideration. Candidates must possess emotional and mental stability.

Pharmacologist GS-7/15

DESCRIPTION OF WORK

Pharmacologists perform scientific work that is concerned with the study of the biological effects of chemical subetances or similar agents on living organisms and their components. It deals with the application or impact of different drugs or substances to human or veterinary medicine, or their effect on man in general. The work is usually performed in connection with (1) the investigation and development of new drugs or useful chemical compounds that have significance in the field of pharmacology, (2) the testing and evaluation of drugs or toxic agents to determine whether they meet standards set for purity, safety, and potency, (3) the review and evaluation of pharmacological and toxicological data to determine whether a drug or product meets approved standards for purity, safety, potency, or labeling, and (4) the support of research and training in pharmacology through grants, awards, and contracts.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements

Applicants must have successfully completed a full 4-year or longer course of study in an accredited college or university leading to a bachelor's or higher degree, with major study in an appropriate discipline or field of the biological, medical, veterinary, or physical sciences, or in pharmacy. This total course of study must have included at least 30 semester hours in chemistry and physiology and 12 semester hours in pharmacology. The nature and quality of this required course-work must have been such that it would serve as a prerequisite for more advanced study in the field or subject-matter area of science to which it pertains.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, pharmacology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.

GS–11.....	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–15 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

QUALIFICATION INQUIRIES

For all grades of these positions, confidential inquiries, including contacts with the applicants' supervisors and associates, or with other persons familiar with their qualifications, may be made to obtain further information about their scientific, technical, professional, and personal qualifications, and about their character and suitability for these positions.

BASIS OF RATING

No written test is required.

Applicants will be rated on the basis of their education, training, experience, and personal qualifications in relation to the requirements of the specific positions for which they are being considered. Ratings will be based on competitors' statements in their applications, and upon any additional evidence that may be secured

through qualification inquiries, interviews, or similar measurement devices used in the examination.

SELECTIVE PLACEMENT

While many of these positions call for practically the full breadth of training received by pharmacologists, some positions tend to become more specialized at the higher grades. These more specialized positions may require specific training and experience in such subject-matter fields of pharmacology as those dealing with specific groups of drugs or toxic agents, specific pharmacological or toxicological relationships, or similar areas of pharmacological or toxicological work. These positions should be filled on the basis of job demands. Only those applicants whose total background of education, training, and experience shows that they possess the knowledges, abilities, and skills needed to meet these job demands will be considered eligible for such positions.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 5. In addition, most positions require the ability to distinguish either basic or shades of colors, and applicants must possess emotional and mental stability.

EVALUATING TRAINING AND EXPERIENCE

The positions in this series are multidisciplinary positions, for the work involves the application of a scientific knowledge of biochemistry, physiology, pharmacology, and such related sciences as microbiology, biophysics, entomology, genetics, and mathematics and statistics. This is noted in the classification standard for these positions. *The material in that standard should be reviewed before an evaluation is made of training and experience in determining candidates' qualifications for these positions.*

There is no single, easily identifiable path leading to a career as a pharmacologist. Traditionally, adequate training in pharmacology has been given at the graduate level in connection with the work of a School of Pharmacy or a School of Medicine. Students who enter these schools directly after completing their undergraduate programs are usually trained in pharmacy, biochemistry, or physiology. It has been the practice to encourage graduate students interested in pharmacology to complete a doctoral program, and most schools gear their program to this objective. A few students take their master's in pharmacology, but this is the exception rather than the rule.

Many pharmacologists enter the field after taking graduate work in chemistry or physiology, and complete their doctoral program in these fields or get their M.D., or D.V.M. They then take additional work toward a Ph. D. in pharmacology. As a matter of fact, most scientists enter this profession at the doctoral or postdoctoral levels.

Now that accredited Schools of Pharmacy have a mandatory 5-year program for pharmacy students, many of these students receive sound preparation in the required disciplines of science, but usually are not trained in research. Graduates of these programs provide a potential source of trainees.

The whole field of science, of which pharmacology is a part, has expanded to the extent that a pharmacologist must know more about the toxic effects of different substances, the scientific relationships involved, and have a more refined knowledge of the biochemical, biophysical, and physiological principles that apply than would have been expected previously. He may also get more involved in entomology (pesticides), and need to know more about basic biological sciences, such as cytology, embryology, and genetics, and must be better prepared to know how to interpret and explain the basic processes of life as they relate to his work.

In evaluating course work to determine whether or not it meets the *minimum educational requirements*, the following guides may be applied:

Course work in chemistry, organic chemistry,

biochemistry, physiology, and animal, human, microbial, or cellular physiology may be used to meet the 30 semester hour requirement in chemistry and physiology. Under some circumstances, i.e., where the course work gives additional insight into the biophysical, biochemical, and physiological relationships involved, courses in such subjects as cytology, embryology, cellular or microbial genetics, and biophysics may be used to meet this requirement.

Any course work in pharmacology, pharmacodynamics, pharmacotherapeutics, molecular pharmacology, toxicology, and similar subjects may be used to meet the 12 semester hour requirement in pharmacology. Course work dealing intensively with pharmacological research, the study and review of pharmacological or toxicological literature, or other pharmacologically oriented subjects may also be used to meet this requirement.

Ecologist GS-5/15

DESCRIPTION OF WORK

Ecologists perform professional and scientific work that utilizes both a systems approach and factoral analysis to study the interrelationships of organisms with each other, with factors of their physical and chemical environment, and with society. Such relationships are considered primarily at the levels of individuals, populations, communities, and ecosystems. Ecologists analyze biological components and processes in the context of ecosystems including environmental factors, physical-chemical-biological relationships, and social relationships using quantitative analytic and synthetic systems analysis techniques to predict the effects of planned or natural changes in ecosystems and to develop solutions to ecological problems.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements

Candidates must have successfully completed a course of study in an accredited college or university leading to a bachelor's or higher degree in biology or a related field of science underlying ecological research. This total course of study must have included at least →30 semester hours in basic and applied biological sciences, including a total of at least 9 semester hours in ecology. In addition, candidates' total course of study also must include at least 12 semester hours in the physical and the mathematical sciences.← The nature and quality of this required course-work must have been such that it would serve as a prerequisite for more advanced study in ecology.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, ecology.

→ The educational and experience background of candidates for Ecologist positions at grade GS-9 and above must include an introduction to the three major areas of ecological inquiry, populations, communities, and ecosystems. Unless this critical requirement is met, there is little distinction between the ecologist and scientists working in other biological sciences.←

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; or Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent);

Grade:		
GS-11—Continued	*Minimum amount or level of education in appropriate subject-matter fields*—Continued	
		or
		Three full academic years of graduate education.
GS-11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when—	a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are typically and preferably acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-11 level after a short orientation period.
GS-12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria:	a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS-7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS-9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of Handbook X-118 must be met.

PROFESSIONAL EXPERIENCE REQUIREMENTS

Experience may have been gained in the performance of research, development, or analytical studies in ecology, any of the varied biological sciences, or a few of the physical science disciplines to obtain insight into new or different concepts, methods, or techniques peculiar to ecology. Experience must have demonstrated skill, knowledge, and technical competence in the use of scientific theories applicable to ecology and professional methods of scientific inquiry and analysis in the solution of research, development, or complex analytical problems.

Such problems must have involved extensive inquiry into or use of basic data, the structuring of problems for systematic analysis, the discovery of new facts, the adaptation or development of scientific techniques, the construction and use of analytical or mathematical models, the formulation of recommendations for action, or the planning or directing of the foregoing activities.

For GS-9—The work experience must have demonstrated a working knowledge of methods and techniques applicable to ecology. It must also have demonstrated skill in the investigation, treatment and analysis of basic data in preparing interpretative and analytical reports.

For GS-11—The work experience must have demonstrated that the applicant possesses the ability to perform professional work in ecology of some difficulty and responsibility. The work experience must also demonstrate the candidate's ability to conduct limited studies or sin-

gle aspects of larger studies, to organize data collections, to select and apply appropriate methods and analysis and to evaluate findings and draw reliable conclusions.

For GS-12—The work experience must have demonstrated skill, knowledge, and technical competence in the use of (a) scientific and mathematical theories and principles applicable to ecology and (b) professional or scientific inquiry and analysis in the solution of difficult and complex research, development, or analytical problems. Ability to prepare thorough and comprehensive reports relating to difficult problems must also be demonstrated.

For GS-13—The work experience must have been in or directly applicable to ecology and must demonstrate that the applicant possesses a thorough understanding of scientific principles and theories underlying ecology and a wide knowledge of concepts, factors, and conditions which influence the structures and dynamics of complex ecosystems. The experience must have demonstrated the applicant's ability in either (a) the organization, direction, and coordination of complicated and important research or development projects, programs, or studies, or (b) marked technical competence and creativity in original scientific inquiry in developing new methods or new insight into relationships involved in complex ecological areas.

For GS-14 and GS-15—The work experience must have been in, or directly applicable to, ecology and must (a) demonstrate a thorough knowledge and understanding of the scientific principles and theories applicable to ecology, and (b) result in new information or advice concerning various alternative courses of action to resolve exceedingly complex ecological problems. Experience for positions at GS-14 and GS-15 must demonstrate (1) skill and facility in the organization, direction, and coordination of complete and difficult research or development projects; and (2) exceptional technical competence in creative activities of high calibre resulting in important contributions to the fundamental knowledges of ecology; and (3) ability to conduct high-level consultative and advisory work in formulating research or development studies and programs and in presenting and carrying out far-reaching changes in major research or development programs, plans, and policies.

CREATIVE OR OUTSTANDING RESEARCH

Where candidates show positive evidence that they have performed highly creative or outstanding research which has led, or can lead, to a major advance in a specific area of research, or to a major advance in the field of ecology, they may be rated on this basis for highly demanding research positions which require similar abilities in order to perform the work. Candidates who meet this criterion may be rated eligible for the next higher grade above that for which they would normally be rated, provided they have not been rated at this higher grade on the basis of meeting the graduate study requirement. To receive this rating, the work must have been creative in the sense that it developed a basic principle, concept, method, or approach (or provided a body of basic information) which opened the way for major advances in ecology.

GUIDE FOR EVALUATION OF CANDIDATES

→ *Evaluating qualifying course-work in the biological, natural, and physical sciences*

Because of the unusual breadth and depth of the science of ecology and the requirements for cross-disciplinary systems approaches in the performance of professional and scientific ecology work, the Ecologist must possess a thorough grasp of the fundamental scientific laws and principles underlying the science of ecology and a sound understanding of how the biological, physical, and mathematical sciences are applied in the study of the interrelationships of organisms and their environments. Many students in this field of science will take graduate work.

The requirement that candidates possess a knowledge of the fundamental scientific laws and principles underlying the science of ecology typically will be met through the successful

completion of the 9 semester hours in ecology specified in the *Basic Requirements For All Grades*. Candidates may acquire a knowledge of the methods and techniques applied in performing ecology work through the successful completion of course-work in many fields of scientific inquiry. Depending on the extent that they deal with concerns or problems of an ecological nature or with specific techniques, methods or principles directly applicable to the performance of professional and scientific work in the field of ecology, course-work in a variety of fields or disciplines may be qualifying. It is most important, therefore, that any review or evaluation of the course-work presented by the candidate to satisfy the *Basic Requirements For All Grades* not be restricted to a cursory review of the candidate's application and any accompanying transcripts of credits earned. The evaluation should focus on the coverage and content of the candidate's course-work and should not be limited to a simple review of course titles and curriculum requirements.

Candidates for GS-5 and 7

Positions at these levels are generally developmental or limited assignment positions. Evaluation of candidates is based largely on their academic career, with consideration also being given to any employment experience they may have had. Evaluation of courses should be based not only on course content and credit hours peculiar to or associated with ecology, but also on the achievement of the candidates in such courses.

In addition to evaluating the candidate's academic record, consideration should be given to such factors as ability to make practical application of theoretical knowledge, ability to understand scientific literature pertaining to ecology, ability to write clear and accurate technical reports, and ability to cooperate with others in accomplishing work to which assigned.

Candidates for positions at GS-9 and above

Many positions at these levels require knowledges and skills of an advanced or specialized nature that typically are acquired through the successful completion of the requirements for a master's or higher degree in Ecology or equivalent training or education.←

For positions at these levels, evaluation of undergraduate college training is less important than the consideration of graduate training and professional work experience. The same factors that are used to evaluate the undergraduate academic record may also be used to evaluate the graduate record.

This occupation requires a high degree of competence in the analysis of biological components and processes in the context of ecosystems. To maintain and develop such competence, training and education beyond that indicated in the basic requirement is needed. It is unlikely that such competence can be developed solely by routine on-the-job experience. Therefore, evidence of further study and personal development should be considered in determining quality of experience and ranking under promotion plans.

In evaluating candidates, in addition to evaluation of graduate education, consideration should be given to active membership in and presentations before professional organizations, technical publications participation in seminars, awards, etc. Technical publications should be evaluated for the significance of their contribution to knowledge advancing the science of ecology.

In addition to the knowledge of biological science, of the concepts, principles, techniques and practices of ecology, and of the interrelationship of related scientific disciplines with ecology, the following abilities are usually critical to work in ecology at the full performance level:

1. Ability to devise new concepts or techniques in the science of ecology or in adapting known techniques to the solution of unique and difficult problems.
2. Ability to think logically in determining the relevance of source material, in establishing procedures for obtaining pertinent data, and in drawing conclusions.
3. Ability to perform extensive inquiry into basic data to discover new facts or fundamental relationships.

4. Ability to use analytical and integrative methods and tools and to apply quantitative methods of analysis.
5. Ability to identify and define goals and objectives, and to evaluate programs and the measures used to implement them.
6. Ability to express ideas effectively both orally and in writing.
7. Ability to work alone or as a member of a team.

QUALITY OF EXPERIENCE REQUIRED

For all positions in this series candidates must show that their total background of education, training, and experience has provided the specific knowledges, skills, and abilities needed to perform the duties of the position for which they are being considered (recognizing that they will be given a reasonable amount of orientation on the job).

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook should also be used.

QUALIFICATIONS INQUIRIES

For all grades, confidential inquiries, including contacts with the candidates' supervisors and associates or with other persons familiar with their qualifications, may be made to obtain further information about their technical, professional, scientific, and personal qualifications, and their character and suitability for these positions.

SELECTIVE PLACEMENT

Some positions in this series require highly specialized knowledges in one or more specific scientific areas or field of ecology, or demonstrated skill in applying highly specialized scientific techniques peculiar to a specific type of research. For such positions, consideration may be restricted to eligibles meeting such specialized requirements.

BASIS OF RATING

No written test is required. Candidates' qualifications will be rated on a scale of 100, and will be evaluated on the basis of their education, training, and experience as shown in the application, and on corroborative evidence obtained by the Civil Service Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, candidates must possess emotional and mental stability.

Zoologist GS-5/15

DESCRIPTION OF WORK

Zoologists perform professional work in the field of zoology, including investigation of the classification, structure, ecology, parasitological phenomena, evolution, and the life history of animals. This work requires professional education and training in the animal and related natural sciences, and knowledge of the principles, methods and techniques applied in the investigation, analysis, and solution of zoological problems.

BASIC REQUIREMENTS FOR ALL GRADES

Candidates must have successfully completed one of the following requirements:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in zoology, or a closely related discipline or field of science. This course of study must have included at least 30 semester hours in biological science, with a minimum of 20 semester hours in zoology and related animal sciences.

B. A total of at least 30 semester hours in biological sciences, as described in A above, plus a sufficient amount of additional experience or education to total 4 years of education and experience or 4 years of education. The nature and quality of this additional experience or education must have been such that, when combined with the prescribed 30 semester hours in biological science, it would give the applicant a professional and scientific knowledge of zoology equivalent to that normally gained by successfully completing the full 4-year course of study described in A above.

Candidates for positions involving highly technical research, development, or similarly complex scientific functions must have completed the full 4-year course of study described in paragraph A.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, zoology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education

are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

CREATIVE OR OUTSTANDING RESEARCH

Candidates who furnish positive evidence that they have performed highly creative or outstanding research, that either has led or can lead to major advances in a specific area of research, to a major advance in the discipline or field of science involved, or to major advances in science in general may be rated on this basis for *highly demanding research positions* requiring similar abilities. Under these circumstances, the applicant can be rated eligible for the next higher grade above that for which he would normally be rated, *provided* he has not been rated eligible at this grade on the basis of meeting the graduate study requirements.

To receive this rating, the work must have been creative in the sense that it developed a basic principle, product, concept, method, approach, or technique, or provided a body of basic information that opened the way for major advances in the discipline or field of science involved, or to advances in science in general, by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of science in a major area.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

GUIDE FOR EVALUATION OF QUALIFICATIONS

Evaluation of education

A. *Undergraduate Education*

The nature and quality of the basic education is of most value in evaluating candidates at the entrance levels (GS-5 and GS-7) and to some extent at GS-9. Undergraduate training is of less significance at succeedingly higher levels as compared with experience. Three aspects are important for consideration:

1. *The extent of preparation in zoology.*—Zoology is one of two basic biological sciences and the parent discipline of the animal sciences. A zoologist must have a thorough grasp of the animal sciences, including an understanding of the scientific principles that underlie the evolution of animals and lead to an interpretation of the way they live, and an understanding of their taxonomy (in some depth in a particular field of interest). Basic course work in zoology usually includes invertebrate and vertebrate zoology, cytology, physiology, parasitology, genetics, embryology, with some courses in such fields as entomology, ichthyology, helminthology, plant nematology, etc. Related course work of value to the zoologist includes botany, animal and plant ecology, plant diseases, medicine or veterinary medicine, population dynamics, climatology, geology, soil and crop sciences, and courses in the physical sciences and mathematics that equip candidates with the knowledges, methodology, and techniques used in analyzing zoological problems.

   Courses in zoology required for graduation or available as electives vary greatly from institution to institution in number, variety, scope and quality. Distinctions in quality level can be made, over and above the courses meeting the basic requirements, on the extent to which additional courses in zoology and related biological and agricultural sciences contribute to the broad or specialized knowledge required for the position being filled.
2. *The extent of preparation in related sciences.*—Adequate preparation in related natural sciences, physical sciences, chemistry, and mathematics is important to equip candidates as experimentalists. Distinctions in quality levels may be made to reflect the nature and quality of preparation in basic and related sciences which contribute to the candidate's ability to perform in the field of zoology.
3. *Academic achievements.*—Consideration might well be given to achievement in science courses, the candidate's general standing in his class, and other academic achievements. These are of most use where other measures (e.g., evaluation of work experience) are not available.

B. *Graduate Education*

The nature and quality of graduate education is a significant factor in evaluating any candidates, but is especially important in evaluating candidates for research positions.

To be qualifying, graduate study must have been in one of the major fields of zoology, or have followed a curriculum or pattern of training that placed major emphasis on one of these disciplines or subject-matter fields, such as nematology or parasitology.

Graduate study in related fields of science, such as microbiology, medicine, veterinary medicine, or plant pathology, that involve cross-training in zoology or one of the fields of zoology, may also be qualifying, provided there is a sufficient amount of emphasis on zoology, to provide the candidate with the essential scientific knowledges, skills, and abilities needed to perform the duties of the specific position for which he is being considered.

Distinctions in quality level, as appropriate to the kinds of positions for which being rated, may be made on the same basis as for undergraduate education, i.e., extent of preparation in zoology, extent of preparation in related sciences, and academic achievements. Distinctions may also be made on the extent to which significant research was performed as a part of the graduate study, and on the quality and pertinence of such research.

Evaluation of experience

Evaluation of experience, whether for competitive or noncompetitive purposes, can best be made by zoologists of high standing in their field who have had some training in examining qualifications and appraising the significance of scientific achievement.

For scientific positions the evaluation of experience necessarily and logically includes appraisal of personal attributes and characteristics as demonstrated in performance on the job. This includes the degree and scope of scientific knowledge possessed by the applicant which can be brought to bear upon scientific problems in the position for which considered.

The following may be considered in the evaluation of experience:

A. *Nature, level, recency, and progressiveness of experience.*—All other things being equal, the best experience is that which shows normal progression in duties and responsibilities at least to a level demonstrating the applicant's ability to perform successfully at the level for which being considered. Stale experience or experience which has not progressed steadily in difficulty and responsibility can be considered as a detracting factor.

Experience which has comprised many varied duties involving the use of knowledge in a number of fields of zoology or related sciences is generally the more valuable experience because of its broadness. However, for positions involving work in a narrow specialized field consideration may be given as appropriate to the depth and intensity of experience in the narrow field of interest.

Collateral experience, including valuable zoological experience in excess of requirements, and experience in closely related natural sciences or the fundamental physical sciences, may be given appropriate additional weight.

Teaching experience in zoology and related subjects may be considered as professional experience in zoology if accompanied by a significant amount of research, direction of research, advising students of graduate level, investigative and consultative service on zoological problems, or similar experience. All specific qualification requirements pertaining to quality of experience, such as grade level, responsibility, scope, and knowledges required, are also to be applied to teaching experience.

B. *Scientific accomplishments.*—Considered here are the candidate's demonstrated knowledge of zoology and related sciences,

his scientific interest as shown by self-development activities, his stature in the profession, and his accomplishments (considering opportunities for such).

Peer judgments are highly important in appraising scientific accomplishments. Evidence used to appraise accomplishments includes participation in zoological and other professional societies, leadership activities in the field of endeavor, honorary and other recognition, contributions to zoological knowledge, publications, and the like. Publications should be carefully appraised in terms of their total contribution to knowledge about the field, rather than judged by volume. Citations by others as an authority, however, may serve as a partial index of the value of published work. The extent of professional recognition may be judged by such things as invitations to present papers before professional groups (international, national, regional, local); activities in professional societies; use as a consultant by other zoologists; and the like.

Zoologists, as they advance in level of responsibility, are expected to show signs of vigorous professional development as a method of keeping abreast of the field. Lack of evidence of this development legitimately may be considered as detracting from the overall quality level assigned.

Accomplishments should be appraised in light of the opportunities afforded by past assignments and the level of these assignments. Negative accomplishments, the disproving of current theories, may be given as much weight as positive accomplishments, as appropriate.

C. *Personal attributes, abilities, and characteristics.*—Following are some of the abilities and personal characteristics most important in zoologist positions. They may be given weight as appropriate for the position for which being considered:

1. Ability to observe and interpret;
2. Reasoning ability;
3. Imagination (the mental synthesis of new ideas from elements experienced separately);
4. Resourcefulness;
5. Planning ability;
6. Ability to prepare papers.

Methods of evaluation

A useful procedure for evaluating candidates for zoology positions, either competitively or noncompetitively, is described under 4 on page 28, appendix A to part II, of this handbook. Under this procedure all of a candidate's experience and education is assigned to a single quality level, considering progressiveness, highest level of attainment, and pertinence. Consideration should also be given to additional and collateral education and experience and to scientific accomplishments in assigning the quality level. Additional points may then be added for the degree to which the personal characteristics necessary to successful performance are present.

Many zoologist positions require highly specialized knowledge of particular areas, functions, or techniques of this scientific work. The specialized knowledge may be broad, or it may be narrow and deep, and it may be rarely found. The qualifications of candidates for such positions should be matched carefully to the requirements for these positions and selective certification procedures used in filling them.

Certain information in addition to that provided in the application form is needed for evaluation of qualifications of candidates for zoologist positions. This includes, as a minimum, evaluations by supervisors and others in a position to provide information on scientific accomplishments and personal characteristics, as well as the quality of performance on the job.

Supplemental applications may be used as necessary to obtain from the candidate the necessary information regarding self-development activities, publications, etc.

BASIS OF RATING

No written test is required. Competitors will be rated on the basis of their education, training, experience, and personal qualifications in relation to the requirements of the specific positions for which they are being considered. Ratings will be based on competitors' statements in their applications, and upon any additional evidence that may be secured through qualifications inquiries or similar measurement devices used in the examination.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, most positions require the ability to distinguish either basic or shades of colors. Candidates must also possess emotional and mental stability.

Physiologist GS-5/15

DESCRIPTION OF WORK

Physiologists perform professional and scientific work concerned with the study of the vital functions and processes essential to animal life in the field of animal and human physiology, i.e., those dealing with the functions, environmental responses, and biological activities and processes of the basic living organism and its component parts. This work may involve studying the physiological aspects of reproduction and development in various forms of life; carrying out studies and experiments to determine the physiological impact of environmental factors, such as light, temperature, pressure, climate, etc.; making bioassays and determining the various biochemical and biophysical relationships involved in the metabolic processes; and the performance of similar work that requires the application of physiological methods, procedures, and techniques.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements

Applicants must have successfully completed a full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in one of the basic animal sciences, physiology, or a closely related discipline or field of science. This course of study must have included at least 24 semester hours in the basic animal sciences, with a minimum of 10 semester hours in animal physiology. The quality of this course-work must have been such that it would serve as a prerequisite for more advanced academic study in the field of science to which it pertains.

Qualifying course-work in basic animal sciences and physiology

Physiology is one of the fundamental biological sciences, and a major discipline of the animal or zoological sciences. A physiologist must have a thorough grasp of the fundamental zoological sciences and biochemistry and an understanding of the scientific principles that underlie physiology, and must know how related sciences, such as invertebrate or vertebrate zoology, cytology, anatomy, embryology, animal, dairy, or poultry husbandry, nutrition, genetics, entomology, microbiology, chemistry, and physics are applied in studying animal and human physiology. Some physiologists are almost completely cross-trained in biochemistry.

Course-work in such courses as anatomy, cytology, invertebrate and vertebrate zoology, embryology, entomology, animal, dairy, and poultry husbandry, nutrition, genetics, and physiology may be used to meet the 24 semester hour requirement in the basic animal sciences.

Course-work in physiology, animal or human physiology, cellular physiology, or course-work that is well oriented toward animal or human physiology, e.g., some advanced courses in biochemistry, are qualifying as animal physiology courses. Course-work in plant physiology is not qualifying. Other course-work in related fields, such as cytology and microbiology (including microbial physiology) may also be qualifying, *provided* the work dealt directly with the application of scientific principles underlying animal physiology, or with the methodology and techniques applied in animal physiology work.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, physiology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For ex-

ample, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS-11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-11 level after a short orientation period.
GS-12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS-7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS-9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

QUALIFYING FIELDS OF GRADUATE STUDY

Graduate study in related fields of zoology or animal science, such as medicine, veterinary medicine, microbiology, invertebrate and vertebrate zoology, entomology, aquatic biology, fishery biology, and animal, dairy, and poultry husbandry, may also be qualifying, *provided* it placed a sufficient amount of emphasis on physiology.

CREATIVE OR OUTSTANDING RESEARCH

Applicants who furnish positive evidence that they have performed highly creative or outstanding research, that either has led or can lead to major advances in a specific area of research, to a major advance in the discipline or field of science involved, or to major advances in science in general, may be rated on this basis for *highly demanding research positions* requiring similar abilities. Under these circumstances, the applicant can be rated eligible for the next higher grade above that for which he would normally be rated, *provided* he has not been rated eligible at this grade on the basis of meeting the graduate study requirements.

To receive this rating, the work must have been creative in the sense that it developed a basic principle, product, concept, method, approach, or technique, or provided a body of basic information that opened the way for major advances in the discipline or field of science involved, or to advances in science in general, by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of science in a major area.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

QUALIFICATIONS INQUIRIES

For all grades of these positions, confidential inquiries, including contacts with the applicants' supervisors and associates, or with other persons familiar with their qualifications, may be made to obtain further information about their technical, professional, and personal qualifications, and about their character and suitability for these positions.

BASIS OF RATING

No written test is required. Competitors will be rated on the basis of their education, training, experience, and personal qualifications in relation to the requirements of the specific positions for which they are being considered. Rating will be based on competitors' statements in the applications, and upon any additional evidence that may be secured through qualification inquiries or similar measurement devices used in the examination.

SELECTIVITY IN PLACEMENT

A varying amount of selectivity is required to fill the more specialized positions in this series, and the paramount requirements for these positions may be related to the applicant's ability to perform the particular kind of highly specialized work involved, or to his ability to perform similar work in related occupational areas of science, where the work applies directly to the subject-matter field of animal physiology that is involved.

For example, physiologists are broadly trained and quite versatile, and assignments are made accordingly at the GS-5 and GS-7 grades, and for many of the higher grade positions. However, some of the work tends to become more specialized at the GS-9 and higher grades, and may require specific training and experience in such subject-matter fields of physiology as those dealing with specific environmental fac-

tors, metabolic influences, growth and development, the physiology of specific forms (insects, fishes, avian forms, etc.), and similar areas of highly specialized physiological work.

Any such position shall be filled on the basis of the job demands, and only those applicants whose total background of education, training, and experience shows that they possess the knowledges, abilities, and skills needed to meet these job demands will be considered eligible for such positions.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, most positions require the ability to distinguish either basic or shades of colors. Applicants must also possess emotional and mental stability.

ENTOMOLOGY SERIES

Entomologist GS-5/15
Research Entomologist GS-11/15

STATEMENT OF DUTIES

Entomologists advise on, administer, supervise or perform professional and scientific work in connection with the characteristics and life processes of insects, the interrelationships between insect species, their relationships to other living forms, their reaction to and influence on the environment in which they are found and their impact on man's welfare. Such work is performed in both laboratory and field environments and may vary considerably depending on the purpose or emphasis of individual assignments.

Entomologists in the Federal service engage in a broad spectrum of work assignments ranging from basic research in insect taxonomy, physiology, toxicology, genetics, etc., or fundamental studies in the role of insects as vectors of human or animal disease, through applied research in such areas as the development or improvement of control methods, to operational work in the prevention of outbreaks of noxious insects, or in the detection, evaluation and suppression of such outbreaks once they have occurred. Such work requires a professional knowledge of the fundamental principles of the biological and physical sciences which underly the field, and the ability to apply these principles to the solution of entomological problems. (For a fuller discussion of the occupation see the classification standard for the Entomology Series, GS-414.)

BASIC REQUIREMENTS FOR ALL GRADES

Candidates for all positions in this series must have successfully completed one of the following requirements:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in entomology or a closely related discipline or field of the biological or physical sciences. This course of study must have included at least 30 semester hours in basic biological and physical sciences, with a minimum of 16 semester hours in entomology. The quality of this course-work must have been such that it would serve as a prerequisite for more advanced work in the field of science to which it pertains.

B. A total of at least 30 semester hours in basic biological and physical sciences, including a minimum of 16 semester hours in entomology, as described in A above, *plus* a sufficient amount of additional experience or education to total 4 years of education and experience or 4 years of education. The nature and quality of this additional experience or education must have been such that, when combined with the prescribed 30 semester hours in the basic biological and physical sciences, it would give the individual a professional and scientific knowledge of entomology equivalent to that normally gained by successfully completing the full 4-year course of study described in A above.

Candidates for positions in research, development, and comparable highly technical and scientific functional areas of entomological work must meet the requirements described in A above.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENT

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, entomology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For ex-

ample, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grade GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS-11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-11 level after a short orientation period.
GS-12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS-7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS-9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

CREATIVE RESEARCH CONTRIBUTION

Except for candidates who qualify for a particular grade on the basis of graduate study, candidates who have made a creative research contribution to the field of entomology may be rated eligible for the next higher grade than that for which they qualify under standard education and experience requirements.

Such research must have been on a hitherto unsolved problem or problems. It must have been creative in that it produced a basic principle, concept, method, approach, or technique that not only solved the specific problem at hand but also is directly applicable in the solution of other problems, and may open a new area of research.

Such creative research characteristically involves the introduction of unorthodox assumptions, idealizations, approaches and biological, chemical, physical or mathematical concepts, techniques or relationships which are not obvious and which have not previously been perceived even by authorities in the field. However it may also be characterized by the rejection of assumptions, idealizations and biological, chemical, physical or mathematical concepts, techniques or relationships hitherto held valid, but which for obscure reasons do not hold when applied to the problem.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

BASIS OF RATING

No written tests are required.

Candidates will be rated on a scale of 100 on the quality and extent of their education and experience in relationship to the duties of the positions to be filled. Such ratings will be based upon applicants' statements in their applications and upon any additional evidence received by the Commission.

EVALUATION OF EDUCATION AND EXPERIENCE

The evaluation of educational preparation in the biological sciences is complicated by the fact that major fields of study or individual courses covering the same fundamental biological principles do not always bear the same major field or course titles. Thus, candidates with major fields of study in biology, zoology, invertebrate zoology or entomology may fully meet the basic educational requirements expressed above.

Particular care must be exercised in the evaluation of course work in the biological and physical sciences. In general, those courses which have dealt with the fundamental principles and theoretical concepts relating to the field make a greater contribution to the candidate's capability for problem solving, and serve as a better base for future professional development than courses which are primarily oriented toward the identification and application of particular methods and techniques to the solution of explicit problems, and should be so considered in ranking candidates for appointment or promotion.

Candidates whose academic preparation has included substantive instruction (including appropriate laboratory and field work) in (1) basic general entomology, (2) taxonomy, (3) physiology, and (4) ecology, and in such physical sciences as (1) general and organic chemistry, (2) general physics, and (3) mathematics or statistics which has provided some training in the analysis of variables, possess a substantial academic base for future professional growth. Some candidates may have taken additional courses in such fields as genetics, microbiology, biochemistry, biostatistics, animal or human physiology, or in the plant sciences, which may be particularly germane to the specialized demands of the individual

position to be filled, or to the target position in the career ladder. Such additional preparation should be taken into account both in the appraisal of the overall breadth and quality of the candidate's education and in filling particular specialized positions.

Evaluation of the kind and level of professional work experience possessed by a candidate should be based on (1) the extent to which the experience has demonstrated the applicant's ability to apply substantive professional knowledges to the solution of scientific problems in the field, (2) the level, scope and responsibility of the candidate's present and past positions, (3) his progressive advancement in the field, (4) the substance and scientific merit of his publications, (5) membership and active participation in appropriate professional societies or honor societies, and (6) any special recognition in the form of special honors, awards, etc.

The nature of this occupation is such that, where possible, evaluation of an applicant's education and experience background should be made by, or in consultation with, entomologists of high standing in their field, who have had some training in examining qualifications and appraising the significance of scientific achievement. To aid in this evaluation, applicants should furnish concise summaries of the substance of their course work as well as course titles. They should also provide clear and concise information about their professional work assignments which describe the nature of the scientific problems they have been called upon to solve and their contribution to the problem-solving process.

QUALIFICATIONS INQUIRIES

Confidential inquiries, including contacts with applicant's present and former professors, supervisors and associates, may be made to obtain further information concerning his technical and personal qualifications and general suitability for these positions.

PRE-EMPLOYMENT INTERVIEWS

In addition to substantive scientific knowledge some positions in this occupation require considerable skill in personal relationships and public contact work. Applicants may, at the option of the agency, be required to appear for a pre-employment interview.

CONDITIONS OF EMPLOYMENT

Some positions in this occupation require that candidates be able to operate an automobile and/or be willing to fly. In such circumstances the following conditions of employment obtain:

1. *Motor vehicle license.*—Applicants must possess a valid automobile driver's license at time of appointment. They must also qualify after appointment for authorization to operate motor vehicles in accordance with applicable Civil Service Commission regulations, and with related agency requirements.

2. *Travel by air.*—For those positions which require considerable travel much of which must be done by air, or which require participation in aerial survey work, persons not willing to accept employment under these conditions may not be appointed.

SELECTIVE PLACEMENT

Entomological problems and the approaches to their solution are many and varied. As a result individual positions in this occupation may require highly particularized specialized knowledges and experience. In such circumstances candidate's qualifications should be evaluated in terms of the peculiar requirements of the specific position to be filled.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, most positions require the ability to distinguish either basic or shades of colors. Applicants must also possess emotional and mental stability.

Botanist GS-5/15

DESCRIPTION OF WORK

Botanists perform professional and scientific work concerned with the study and application of the fundamental principles of botany and the related natural and physical sciences to problems of a botanical nature. This work may involve the investigation of life cycles, growth habits, distribution, and economic values of plants; studies of the anatomical, morphological, and cytological characteristics of plants, including field crops, fruits, and vegetables; ecological studies and work of a related nature; studying and interpreting specific botanical features, such as the identification of seeds and fruits; and the application of botanical knowledge in work of a similar nature.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements

Applicants must have successfully completed one of the following requirements:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in botany or basic plant science. This course of study must have included at least 24 semester hours in botany.

B. A total of at least 24 semester hours in botany, plus a sufficient amount of additional experience or education to total 4 years of experience and education or 4 years of education. The nature and quality of this additional experience or education must have been such that, when combined with the prescribed 24 semester hours in botany, it would give the applicant a professional and scientific knowledge of botany comparable to that normally gained by successfully completing the full 4-year course of study described in A above.

For positions dealing with the study of fungi, or with basic mycological relationships, the course work in botany must have included at least 6 semester hours in mycology.

Applicants for positions in research, development, and comparable highly technical and scientific functional areas of botanical work must meet the requirements prescribed in A above.

Qualifying course work in botany

Botany is one of two most basic and fundamental biological sciences and the parent discipline of the plant sciences. A botanist must have a thorough grasp of the fundamental scientific laws and principles underlying the plant sciences, a sound knowledge of plant anatomy and morphology, cytology, physiology, mycology, taxonomy, ecology, and ethnobotany, and a good understanding of how the related biological and physical sciences apply to the plant sciences. Most students majoring in botany will take graduate work.

Course work in basic botany, plant anatomy or morphology, cytology, histology, genetics, taxonomy or systematics, algology, mycology, ethnobotany, and that dealing with specific problems of a botanical nature, or with specific groups of plants, is qualifying. One of the criteria that can be applied in evaluating this work is that most of the courses will be given in a Department of Botany or Plant Science.

The course-work requirement for mycologists is specific and the courses must have been in mycology.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, botany.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the posi-

tion for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A

combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

QUALIFYING FIELDS OF GRADUATE STUDY

To be qualifying, graduate study must have been in one of the major disciplines or subject-matter fields of botany, or have followed a curriculum or pattern of training that placed major emphasis on one of these disciplines or subject-matter fields.

Graduate study in related fields of plant science, such as agronomy, plant pathology, or horticulture, that involved cross-training in botany, or one of the disciplines or subject-matter fields of botany, may also be qualifying, *provided* it placed a sufficient amount of emphasis on botany.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

CREATIVE OR OUTSTANDING RESEARCH

Applicants who furnish positive evidence that they have performed highly creative or outstanding research, that either has led or can lead to major advances in a specific area of research, to a major advance in the discipline or field of science involved, or to major advances in science in general, may be rated on this basis for *highly demanding research positions* requiring similar abilities. Under these circumstances, the applicant can be rated eligible for the next higher grade above that for which he would normally be rated, *provided* he has not been rated eligible at this grade on the basis of meeting the graduate study requirements.

To receive this rating, the work must have been creative in the sense that it developed a basic principle, product, concept, method, approach, or technique, or provided a body of basic information that opened the way for major advances in the discipline or field of science involved, or to advances in science in general, by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of science in a major area.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

QUALIFICATIONS INQUIRIES

For all grades of these positions, confidential inquiries, including contacts with the applicants' supervisors and associates, or with other persons familiar with their qualifications, may be made to obtain further information about their technical, professional, and personal qualifications, and about their character and suitability for these positions.

BASIS OF RATING

No written test is required. Competitors will be rated at these grades on the basis of their education, training, experience, and personal qualifications in relation to the requirements of the specific positions for which they are being considered. Ratings will be based on competitors' statements in the applications, and upon any additional evidence that may be secured through qualifications inquiries or similar measurement devices used in the examination.

SELECTIVITY IN PLACEMENT

A varying amount of selectivity is required to fill the more specialized positions in this series, and the paramount requirements for these positions may be related to the applicant's ability to perform the particular kind of highly specialized work involved, or to his ability to perform

similar work in related occupational areas of science, where the work applied directly to the subject-matter field of botany that is involved.

For example, botanists are generally broadly trained in their field, and tend to specialize in certain subject-matter areas, such as taxonomy* plant anatomy and morphology, plant physiology*, plant ecology, and related areas of botany by the time they graduate from college. Assignments are made accordingly at the GS-5 and GS-7 grades. At the GS-9 and higher grades, there is more specialization, and the work may require specific training and experience in particular subject-matter areas of botany, such as plant anatomy (including histology and histochemistry), plant cytology, plant morphology, plant ecology, mycology, or ethnobotany, and similar areas of botanical work.

Any such position shall be filled on the basis of the job demands, and only those applicants whose total background of education, training, and experience shows that they possess the knowledges, abilities, and skills needed to meet these job demands will be considered eligible for such positions.

*Plant taxonomists and plant physiologists are classified in separate series, but technically are recognized subject-matter areas of botany.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, most positions require the ability to distinguish either basic or shades of colors. Applicants must also possess emotional and mental stability.

Plant Pathologist GS-5/15

DESCRIPTION OF WORK

Plant pathologists perform professional and scientific work concerned with the investigation and study of the cause, nature, prevalence, and severity of plant diseases caused by parasitic and nonparasitic microorganisms, viruses, and related organisms, and the development and application of preventative measures and controls for these diseases. They develop techniques designed to produce artificial epiphytotics of the various diseases under study and investigate their use; experiment on the establishment and use of methods designed to control such diseases; investigate the life cycles of disease-producing organisms, and determine the host-parasite relationships involved; and find out how these diseases affect the culture, harvest, transportation, and storage of plants and plant products. Much of the work is of an investigative or research nature and tends to emphasize a specialized field of plant pathology, such as that dealing with a particular group of pathogens, diseases that affect particular kinds of crops, or specific types of controls. Some of the work is more concerned with the carrying out of control programs or with the dissemination of knowledge about plant pathology through groups, by means of extension programs, or by college participation in the program.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements

Applicants must have successfully completed a full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in plant pathology or a closely related discipline or field of science. This course of study must have included at least 20 semester hours in basic botany or plant science with a minimum of 10 semester hours in plant pathology. The quality of this course-work must have been such that it would serve as a prerequisite for more advanced courses in the field of science to which it pertains.

Qualifying course-work in botany, plant science, and plant pathology

Plant pathology is one of the applied plant sciences. A plant pathologist must have a thorough grasp of the scientific principles underlying the biological, physical, and plant sciences, must be thoroughly prepared in botany and chemistry, and specifically trained in plant pathology, and must know how related sciences, such as plant physiology, genetics, entomology, chemistry, agronomy, forestry, and horticulture apply to his work. Such training is only obtained through formal education. Most students in this field of science take graduate work.

Course-work in botany, plant physiology, plant taxonomy, plant pathology, agronomy, forestry, horticulture, or similar subjects may be used to meet the 20-semester-hour requirement in basic botany or plant science.

To meet the specific 10-semester-hour requirement in plant pathology, the courses must have been in plant pathology, or have dealt with specific subject-matter areas of plant pathology, such as those concerned with viruses, fungus or bacterial diseases, host-plant relationships, biotic or chemical controls, environmental or physiological diseases, parasitic diseases, etc.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, plant pathology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example,

candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

QUALIFYING FIELDS OF GRADUATE STUDY

To be qualifying, graduate study must have been in plant pathology, or in one of the recognized subject-matter fields of plant pathology, or have followed a curriculum or pattern of training that placed major emphasis on plant pathology or one of the recognized subject-matter fields of plant pathology, such as those dealing with particular types of pathogens, diseases of particular kinds of crops, chemical or biological controls, etc.

Graduate study in related fields, such as microbiology, entomology, plant physiology, genetics, agronomy, horticulture, forestry, or chemistry, may also be qualifying, *provided* it placed a sufficient amount of emphasis on plant pathology.

CREATIVE OR OUTSTANDING RESEARCH

Applicants who furnish positive evidence that they have performed highly creative or outstanding research, that either has led or can lead to major advances in a specific area of research, to a major advance in the discipline or field of science involved, or to major advances in science in general, may be rated on this basis for *highly demanding research positions* requiring similar abilities. Under these circumstances, the applicant can be related eligible for the next higher grade above that for which he would normally be rated, *provided* he has not been rated eligible at this grade on the basis of meeting the graduate study requirements.

To receive this rating, the work must have been creative in the sense that it developed a basic principle, product, concept, method, approach, or technique, or provided a body of basic information that opened the way for major advances in the discipline or field of science involved, or to advances in science in general, by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of science in a major area.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

QUALIFICATIONS INQUIRIES

For all grades of these positions, confidential inquiries, including contacts with the applicants' supervisors and associates, or with other persons familiar with their qualifications, may be made to obtain further information about their technical, professional, and personal qualifications, and about their character and suitability for these positions.

BASIS OF RATING

No written test is required. Competitors will be rated on the basis of their education, training, experience, and personal qualifications in relation to the requirements of the specific positions for which they are being considered. Ratings will be based on competitors' statements in the applications, and upon any additional evidence that may be secured through qualification inquiries or similar measurement devices used in the examination.

SELECTIVITY IN PLACEMENT

A varying amount of selectivity is required to fill the more specialized positions in this series, and the paramount requirements for these positions may be related to the applicant's ability to perform the particular kind of highly specialized work involved, or to his ability to perform similar work in related occupational areas of

science, where the work applies directly to the subject-matter area of plant pathology involved.

For example, plant pathologists are usually broadly trained in their field, and assignments are made accordingly at the GS–5 and GS–7 grades. At the GS–9 and higher grades, the work tends to become more specialized, and may require specific training and experience in such subject-matter fields of plant pathology as those dealing with viruses, fungus or bacterial diseases, host plants, biotic and chemical controls, environmental or physiological diseases, parasitic disease, or similar areas of plant pathology work.

Any such position shall be filled on the basis of the job demands, and only those applicants whose total background of education, training, and experience shows that they possess the knowledges, abilities, and skills needed to meet these job demands will be considered eligible for such positions.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, most positions require the ability to distinguish either basic or shades of colors. Applicants must also possess emotional and mental stability.

Plant Physiologist GS–5/15

DESCRIPTION OF WORK

Plant physiologists perform professional and scientific work that is concerned with the study of the vital functions essential to the life of a plant or of its product, such as growth, nutrition, respiration, and reproduction. This work may involve studies of the effects of environmental factors, such as light, temperature, moisture, and nutrients, and applied chemicals upon the rate, kind, and amount of plant growth; the determination of the maturity, quality, and storage life of flowers, fruits, roots, seeds, and other plant products; studies of the effects and nature of substances that regulate or inhibit the growth and development of plants; and the analysis and interpretation of experimental data, and the preparation of scientific reports, manuscripts, or similar literature dealing with these studies and investigations.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements

Applicants must have successfully completed a full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in botany, plant physiology, or a closely related discipline or field of science. This course of study must have included at least 10 semester hours in plant physiology.

Qualifying course work in plant physiology

Plant physiology is one of the fundamental biological sciences and a major discipline of botany. A plant physiologist must have a thorough grasp of the fundamental plant sciences and the physical sciences, an understanding of the scientific principles that underlie the way a plant develops, lives, and reacts to its environment, and a good understanding of biophysics and biochemistry before he can advance very far in the field of plant physiology. Thorough training in plant physiology may be limited at the undergraduate level, and most students in this field take graduate training as a matter of course.

The 10-semester-hour requirement in plant physiology is specific. The course work is qualifying where it deals with plant physiology, some phase of plant physiology, or methods and techniques applied in plant physiology work. Other course work in borderline areas should be evaluated on the basis of its content, and prorated accordingly.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, plant physiology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of

the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

CREATIVE OR OUTSTANDING RESEARCH

Applicants who furnish positive evidence that they have performed highly creative or outstanding research, that either has led or can lead to major advances in a specific area of research, to a major advance in the discipline or field of science involved, or to major advances in science in general, may be rated on this basis for *highly demanding research positions* requiring similar abilities. Under these circumstances, the applicant can be rated eligible for the next higher grade above that for which he would normally be rated, *provided* he has not been rated eligible at this grade on the basis of meeting the graduate study requirements.

To receive this rating, the work must have been creative in the sense that it developed a basic principle, product, concept, method, approach, or technique, or provided a body of basic information that opened the way for major advances in the discipline of field of science involved, or to advances in science in general, by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of science in a major area.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

QUALIFICATIONS INQUIRIES

For all grades of these positions, confidential inquiries, including contacts with the applicants' supervisors and associates, or with other persons familiar with their qualifications, may be made to obtain further information about their technical, professional, and personal qualifications, and about their character and suitability for these positions.

BASIS OF RATING

No written test is required. Competitors will be rated on the basis of their education, training, experience, and personal qualifications in relation to the requirements of the specific position for which they are being considered. Ratings will be based on competitors' statements in the applications, and upon any additional evidence that may be secured through qualification inquiries or similar measurement devices used in the examination.

SELECTIVITY IN PLACEMENT

A varying amount of selectivity is required to fill the more specialized positions in this series, and the paramount requirements for these positions may be related to the applicant's ability to perform the particular kind of highly specialized work involved, or to his ability to perform similar work in related occupational areas of science, where the work applies directly to the subject-matter area of plant physiology that is involved.

Plant physiologists are considered to be broadly trained and quite versatile in their field, and normally move quite readily from one assignment to another. There is some specialization, however, at the GS–9 and higher grades, where the work may require specific training and experience in such areas of physiology as those dealing with specific environmental factors, nutritional problems, growth regulators, and similar areas of assignment.

Any such position shall be filled on the basis of the job demands, and only those applicants whose total background of education, training, and experience shows that they possess the knowledges, abilities, and skills needed to meet these job demands will be considered eligible for such positions.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, most positions require the ability to distinguish either basic or shades of colors. Applicants must also possess emotional and mental stability.

Horticulturist GS-5/15 (All Specializations Except Those Primarily Concerned With the Maintenance of Parks and Grounds)

DESCRIPTION OF WORK

Horticulturists perform professional and scientific work concerned with the breeding, improvement, propagation, and culture of fruits, nuts, vegetables, flowers, and ornamental trees and shrubs, and with allied problems related to their production, storage, and handling. Some of the work is primarily of a research nature and requires the application of a knowledge and understanding of the growth habits and full life cycles of specific horticultural plants, and of the various processes of germination, reproduction, and propagation involved, or a familiarity with cultural requirements, harvesting techniques, and methods of storage and handling. Other work requires the application of a basic knowledge of the scientific principles underlying the plant sciences, and a specific knowledge of horticulture, in solving problems related to land, farm, greenhouse, or nursery management in the operation of arboretums or botanical gardens or in the maintenance of such areas.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements

Applicants must have successfully completed one of the following requirements:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree in horticulture or a closely related field of basic plant science. This course of study must have included at least 30 semester hours of course-work in the basic plant sciences with a minimum of 16 semester hours in horticultural subjects, such as those dealing with the breeding, care, management, production, and post harvest handling of horticultural crops. The quality of this course-work must have been such that it would serve as a prerequisite for more advanced courses in the field of science to which it pertains.

B. A total of at least 30 semester hours of course-work in the basic plant sciences, as described in A above, plus a sufficient amount of additional experience or education to total 4 years of education and experience or 4 years of education. The nature and quality of this additional experience or education must have been such that, when combined with the prescribed 30 semester hours in basic plant sciences, it would give the applicant a professional and scientific knowledge of horticulture comparable to that normally gained by successfully completing the full 4-year course of study described in A above.

Applicants for positions in research, development, and comparable highly technical and scientific functional areas of horticulture work must meet the requirements described in A above.

Qualifying course-work in basic plant science and horticulture

Horticulture is one of the fundamental, applied plant sciences. A horticulturist must have a thorough grasp of the fundamental plant sciences and an understanding of the scientific principles that underlie horticulture, and must know how the related sciences, such as chemistry, plant physiology, plant taxonomy, genetics, plant pathology, entomology, microbiology, agronomy and soils are applied in horticulture. Most of the work in the Federal service is of a research or similar highly technical and scientific nature.

Course-work in botany, plant physiology, plant taxonomy, plant pathology, genetics, agronomy, horticulture and similar courses may be used to meet the 30-semester-hour requirement in basic plant sciences.

The 16-semester-hour requirement in horticulture is interpreted to mean course-work in basic horticulture and course-work related to any of the recognized subject-matter fields of horticulture, i.e., fruits, vegetables, ornamentals, nursery work, seed production, *or* course-work in related areas of science, such as micro-

biology, entomology, plant pathology, plant physiology, or genetics that is related directly to horticultural work.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, horticulture.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS-11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-11 level after a short orientation period.
GS-12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS-7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS-9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

QUALIFYING FIELDS OF GRADUATE STUDY

To be qualifying, this graduate study must have been in horticulture, or in one of the recognized subject-matter fields of horticulture, or have followed a curriculum or pattern of training that placed major emphasis on horticulture or one of the recognized subject-matter fields of horticulture.

Graduate study in related fields of plant science, such as botany, plant physiology, or agronomy, or in a related field of science such as genetics, chemistry, microbiology, or entomology, may also be qualifying, *provided* it placed a sufficient amount of emphasis on horticulture.

CREATIVE OR OUTSTANDING RESEARCH

Applicants who furnish positive evidence that they have performed highly creative or outstanding research, that either has led or can lead to major advances in a specific area of research, to a major advance in the discipline or field of science involved, or to major advances in science in general, may be rated on this basis for *highly demanding research positions* requiring similar abilities. Under these circumstances, the applicant can be rated eligible for the next higher grade above that for which he would normally be rated, *provided* he has not been rated eligible at this grade on the basis of meeting the graduate study requirements.

To receive this rating, the work must have been creative in the sense that it developed a basic principle, product, concept, method, approach, or technique, or provided a body of basic information that opened the way for major advances in the discipline or field of science involved, or to advances in science in general, by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of science in a major area.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

QUALIFICATIONS INQUIRIES

For all grades of these positions, confidential inquiries, including contacts with the applicants' supervisors and associates, or with other persons familiar with their qualifications, may be made to obtain further information about their technical, professional, and personal qualifications, and about their character and suitability for these positions.

BASIS OF RATING

No written test is required. Competitors will be rated on the basis of their education, training, experience, and personal qualifications in relation to the requirements of the specific

positions for which they are being considered. Ratings will be based on competitors' statements in the applications, and upon any additional evidence that may be secured through qualification inquiries or similar measurement devices used in the examination.

SELECTIVITY IN PLACEMENT

A varying amount of selectivity is required to fill the more specialized positions in this series, and the paramount requirements for these positions may be related to the applicant's ability to perform the particular kind of highly specialized work involved, or to his ability to perform work in related occupational areas of science, where the work applies directly to the subject-matter field of horticulture that is involved.

For example, horticulturists are usually broadly trained in basic horticulture and in a particular specialty, e.g., pomology, olericulture, ornamentals, or nursery work and seed production, and assignments are made accordingly at the GS-5 and GS-7 grades. At the GS-9 and higher grades, the work tends to become more specialized, and may require specific training and experience in such subject-matter fields of horticulture as those dealing with specific kinds of horticultural plants, with their breeding, improvement, propagation, and culture, or with their production, storage, and post harvest handling problems.

Any such position shall be filled on the basis of the job demands, and only those applicants whose total background of education, training, and experience shows that they possess the knowledges, abilities, and skills needed to meet these job demands will be considered eligible for such positions.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, most positions require the ability to distinguish either basic or shades of colors. Applicants must also possess emotional and mental stability.

Geneticist GS-5/15

DESCRIPTION OF WORK

Geneticists perform professional and scientific work concerned with the study and application of the scientific principles and mechanisms that apply to the transmission of plant and animal characteristics by inheritance; to the expression of these characteristics in the plants and animals; and to the improvement of economically important plants and animals, the control of diseases, or the development of new varieties of plants and breeds of animals of use to man.

This work involves determining the basic anatomical and physiological characteristics in specific animals and plants and their mode of transmission and expression; investigating and determining the cytological, cytogenetic, and cytotaxonomic features involved; determining, evaluating, and applying the genetic mechanisms, characteristics, principles, and other features in relation to the growth, development, and survival of plants and animals, crop and animal production, the control and eradication of pest and plant, animal, and human diseases, the development of new strains or varieties of plants or strains or breeds of livestock, poultry, or other economically important animals, and the genetic and environmental responses of the plants and animals themselves.

Some of the work is primarily concerned with plant genetics, some with animal genetics, and some with the study and use of the principles, methods, and techniques that are applied in genetics work in general. In performing this work, the geneticist applies a sound knowledge of the basic biological, plant, or animal sciences, and may be called upon to apply a highly refined knowledge of mathematics, statistics, biochemistry, and biophysics in solving problems of a genetic nature.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements

Applicants must have successfully completed a full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in genetics or one of the basic biological sciences. This course of study must have included at least 9 semester hours in genetics.

Qualifying course-work in genetics

Genetics is a rigorous discipline of biological science. A geneticist must have a good grasp of one of the fundamental basic or applied biological sciences, an understanding of mathematics and statistics, and a knowledge of physiology and biochemistry before he ventures very far into his study of genetics. Most students in this field take graduate work as a matter of course, because specific training in genetics may be limited at the undergraduate level. Under these circumstances, it may be necessary to evaluate the course-work in genetics in one of two ways, as described below, to determine whether or not it is qualifying.

The course-work is qualifying where it deals with genetics, some phase of genetics, or specific techniques that are applied in genetics work. This includes courses in such subjects as genetics, plant or animal genetics, mathematics and statistics (as they apply to genetics), population dynamics, and certain techniques such as those dealing with irradiation.

The course-work is also qualifying where it consists of an appropriate combination of basic courses in genetics and cytology or statistics. This is interpreted to mean that any appropriate combination of basic courses in genetics, cytology, or statistics will provide the minimum amount of specialized knowledge a geneticist must have for the purpose of meeting the minimum educational requirements prescribed in this standard.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or

graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, genetics.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee

experience is qualifying at grade GS-7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS-9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

QUALIFYING FIELDS OF GRADUATE STUDY

To be qualifying, graduate study must have been in genetics, or have followed a curriculum or pattern of training that placed major emphasis on genetics.

Graduate study in related fields, such as agronomy, horticulture, animal, dairy, or poultry husbandry, entomology, microbiology, plant pathology, chemistry, and physiology, that involved cross-training in genetics may also be qualifying, *provided* it placed a sufficient amount of emphasis on genetics.

CREATIVE OR OUTSTANDING RESEARCH

Applicants who furnish positive evidence that they have performed highly creative or outstanding research, that either has led or can lead to major advances in a specific area of research, to a major advance in the discipline or field of science involved, or to major advances in science in general, may be rated on this basis for *highly demanding research positions* requiring similar abilities. Under these circumstances, the applicant can be rated eligible for the next higher grade above that for which he would normally be rated, *provided* he has not been rated eligible at this grade on the basis of meeting the graduate study requirements.

To receive this rating, the work must have been creative in the sense that it developed a basic principle, product, concept, method, approach, or technique, or provided a body of basic information that opened the way for major advances in the discipline or field of science involved, or to advances in science in general, by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of science in a major area.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

QUALIFICATIONS INQUIRIES

For all grades of these positions, confidential inquiries, including contacts with the applicants' supervisors and associates, or with other persons familiar with their qualifications, may be made to obtain further information about their technical, professional, and personal qualifications, and about their character and suitability for these positions.

BASIS OF RATING

No written test is required. Competitors will be rated on the basis of their education, training, experience, and personal qualifications in relation to the requirements of the specific positions for which they are being considered. Ratings will be based on competitors' statements in the applications, and upon any additional evidence that may be secured through qualification inquiries or similar measurement devices used in the examination.

SELECTIVITY IN PLACEMENT

A varying amount of selectivity is required to fill the more specialized positions in this series, and the paramount requirements for these positions may be related to the applicant's ability to perform the particular kind of highly spe-

cialized work involved, or to his ability to perform similar work in related occupational areas of science, where the work applies directly to the subject-matter area of genetics that is involved.

For example, geneticists are as a rule broadly trained in their field and usually specialize in plant or animal genetics, and assignments are made accordingly at the GS-5 and GS-7 grades. At the GS-9 and higher grades, the work becomes more specialized and may require specific training or experience in such subject-matter areas of genetics as cytogenetics, population or biometrical genetics, genetic mechanisms (including codes), those dealing with specific crops or certain kinds of microbes or insects, and those requiring a knowledge of specific techniques, such as those used in mutation studies.

Any such position shall be filled on the basis of the job demands, and only those applicants whose total background of education, training, and experience shows that they possess the knowledges, abilities, and skills needed to meet these job demands will be considered eligible for such positions.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, most positions require the ability to distinguish either basic or shades of colors. Applicants must also possess emotional and mental stability.

Range Conservationist, GS–5/15
Range Scientist, GS–5/15

DESCRIPTION OF WORK

Range Conservationists perform professional work concerned with inventorying, analyzing, improving, protecting, utilizing, and managing the natural resources of rangelands and related grazing lands; regulating grazing on public rangelands; developing cooperative relationships with range users and other groups; assisting private and Indian landowners to plan and apply range conservation programs on the rangelands under their control; and developing technical standards and specifications for range conservation and management.

Range Scientists carry out basic and applied research to discover principles underlying range conservation activities and to develop new or improved practices, techniques, or equipment for range conservation work.

BASIC REQUIREMENTS FOR ALL GRADES

1. Candidates for Range Conservationist positions must demonstrate successful completion of the requirements in paragraph A or paragraph B below:

A. A full 4-year or longer course of study in an accredited college or university leading to a bachelor's or higher degree with major study in range management or a directly related subject-matter field. This course of study must have included a total of at least 42 semester hours in a combination of the plant, animal, and soil sciences and natural resources management and must be diversified as follows:

—Range Management

Candidates must have completed at least 18 semester hours of course work in range management. Acceptable course work includes, but is not limited to, courses in such areas as basic principles of range management; range plants; range ecology; range inventories and studies; range improvements; and ranch or rangeland planning.

—Directly Related Plant, Animal and Soil Sciences

Candidates must have completed at least 15 semester hours of directly related course work in the plant, animal and soil sciences. This course work must have included at least one course in each of these three scientific areas, i.e., plant, animal and soil sciences. Acceptable course work includes, but is not limited to, courses in such areas as plant taxonomy; plant physiology; plant ecology; animal nutrition; livestock production; and soil morphology or soil classification.

—Related Resource Management Studies

Candidates must have completed at least 9 semester hours of course work in related resource management subjects. Acceptable course work includes, but is not limited to, courses in such areas as wildlife management; watershed management; natural resource or agricultural economics; forestry; agronomy; forages; and outdoor recreation management.

B. A total of at least 42 semester hours of course work in an accredited college or university in a combination of the plant, animal and soil sciences and natural resources management. The requirements for diversification of these 42 semester hours are the same as specified in paragraph A, above. In addition to these requirements, candidates must have additional education and/or experience which, when combined with the 42 semester hours of course work, will total 4 years of education or 4 years of combined education and experience.

The quality of such additional education or experience must have been sufficient to give the candidate professional and scientific knowledge equivalent to that normally acquired through the successful completion of a full 4-year course of study as described in A above. In combining undergraduate education with experience, an academic year of study which comprises 30 semester hours or 45 quarter hours will be considered equivalent to 9 months of experience.

2. Candidates for Range Scientist positions must have successfully completed the full 4-year course of study described in paragraph A above.

GS–5.—The basic requirements which apply to all grades are full qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, range conservation, e.g., forestry, wildlife management, soil conservation, soil science, or ecology, where the experience or study dealt with problems directly related to range conservation.

This experience or education must have equipped the candidate with the knowledges, skills, and abilities to perform fully the work of the position for which he/she is being considered (recognizing that new employees will be given a reasonable amount of orientation on the job). For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal Service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research type exploratory development of a creative or advanced scientific nature.

b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D.) or equivalent) level.

c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (See the Introduction to Handbook X-118, Part II, Section III, for specific information on crediting "full-time" and "part-time" graduate study.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS-7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS-9. In each case, the pertinent criteria in Section III of Part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in Part III of this handbook, to be used with this standard.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology," which deal with acceptance of education leading to a bachelor's or higher degree in an appropriate field of science or technology which does not fully or literally satisfy the basic educational requirement specific for the occupation. (See the Introduction to Handbook X-118, Part II, Section III, for specific requirements for application of this amendment.)

AMENDED EXPERIENCE REQUIREMENT

This standard is subject to the general amendment concerning specialized experience requirements in noncompetitive actions which deals with acceptance of different kinds of experience toward meeting the specialized experience requirements, when the total background of the candidate demonstrates that he/she possesses full journeymen knowledge or professional competence in the occupation in which the job is classified and has the necessary level of skills, knowledge, and abilities necessary to do the work. (See the section on "Evaluating Specialized Experience: A General Amendment to Certain Qualification Standards" in the Introduction to Handbook X-118, Part II, Section III, for specific requirements for application of this amendment.)

SPECIAL REQUIREMENTS FOR RANGE SCIENTIST POSITIONS

Many Range Scientist positions are highly specialized and may require different types of education, training, and experience either in range conservation research or in another field of research. For these positions, candidates must show that they have had sufficient education, training, and experience to give them the knowledges, skills, and abilities needed to perform successfully the duties of the position for which they are being considered. For all research positions at the GS-12 and higher grades, candidates must show that they have the ability to analyze and interpret the results of research, and that they are able to prepare this material for publication.

Some Range Scientist positions may require the ability to supervise and direct a highly trained scientific staff working in a number of

different disciplines. For such positions, candidates must show that they are thoroughly familiar with the scientific principles and concepts involved, can cooperate and work with others in a team approach to research, and have the scientific stature and leadership qualities needed to lead and direct a group of research workers.

CREDIT FOR CREATIVE OR OUTSTANDING RESEARCH

Candidates for research positions who can furnish positive evidence that they have performed highly creative or outstanding research which meets the criterion described below, may be rated eligible for the next higher grade than that for which they would normally be rated. (A candidate who achieves a higher grade on the basis of the graduate study provisions is not eligible for an additional grade based on this criterion.)

To receive such credit, the work must have been creative in the sense that it produced a basic principle, concept, method, approach, or technique or provided a body of basic information, that opened the way for major advances in the discipline or field of science involved, or to advances in science in general. Such research must have been on previously unsolved problems which involved the introduction of unorthodox assumptions, idealizations, approaches, scientific concepts, techniques, or relationships which were not obvious and which had not previously been perceived by authorities in the field, or, it may have involved the rejection of assumptions, idealizations, approaches, scientific concepts, techniques, or relationships which had previously been held valid in the discipline or field of science involved.

SELECTIVE PLACEMENT

A varying amount of selectivity is required to fill specialized range conservationist and range scientist positions. While most, if not all, range conservationists perform work in and apply an understanding of the principles of the broad field of range conservation and management, some positions require that particular kinds or combinations of knowledges be applied more intensely than in other positions. In some cases, therefore, it may be appropriate to use selective placement techniques, i.e., only those candidates whose total background of education, training, and experience shows that they possess the knowledges, skills, and abilities required should be referred for employment consideration. In these cases, it is important to compare the candidate's entire background against the specific requirements of the position. For example, for certain positions, education or experience that provided specialized knowledge of animal nutrition and feeding may be required. For range scientist positions, candidates must possess the aptitude or ability to perform professional research work at the appropriate grade level.

Where selective factors are used, however, they must be demonstrably related to the knowledges, skills, abilities and other characteristics considered *essential* to produce candidates capable of performing the duties of the positions satisfactorily. The factors should represent *minimum* acceptable qualifications for the job of interest. The appropriateness of the factors should be reflected in the duties and responsibilities of the position as presented in the position description or in other official information provided by the agency. Moreover, the use of these factors must not result in the establishment of unreasonably high or overly restrictive requirements. That is, the proposed selective factors should not be used if it is evident that other eligibles could perform satisfactorily after a customary training period.

GUIDE FOR THE EVALUATION OF CANDIDATES

The following factors are suggested for consideration in evaluation or rating the relative qualifications of candidates:

1. *The extent, nature, and content of qualifying basic education*

The extent, nature, and content of education are of primary importance in evaluating qualifications of candidates for positions at grades GS-5 and GS-7. At the higher levels, they are

also important, but they are necessarily subordinated to proven professional capability as demonstrated through experience.

This standard states, under Basic Requirements For All Grades, only the minimum education a candidate must have to be able to learn and perform range conservation or range research work. A candidate with just the type and amount of education specified is rated eligible, but is considered only minimally qualified or prepared for the work. In ranking candidates, it is important to consider whether a particular candidate has: (1) substantially more than the minimum of 42 semester hours required; (2) substantially more than the minimum of 18 semester hours in range management; (3) substantially more than 15 semester hours in directly related plant, animal and soil sciences; and (4) substantially more than 9 semester hours in related resource management subjects. It is also important to consider the diversity of education. Normally, the candidate who has completed substantially all of the courses listed below under (1) Range Management, and (2) Directly Related Plant, Animal and Soil Sciences, is especially well suited, from an educational standpoint, to enter or advance in range conservation work. (The applicability of specific course work listed under (3) Related Resource Management Subjects varies with the position to be filled. However, a broad educational background in these subjects will also generally enhance candidates' qualifications for range conservation positions.)

Examples of acceptable course work in (1) range management; (2) plant, animal and soil sciences, and (3) related resource management subjects are listed in the Basic Requirements For All Grades. The following course descriptions are provided to guide users of this standard. The evaluation of a candidate's educational background should focus on the coverage and content of the candidate's course work and should not be limited to a simple review of course titles.

Range Management

a. Basic Principles—principles of range management; using animal and plant sciences to create good land stewardship; range management legislation and policies and grazing management practices.
b. Range Plants—phenology, forage value, desirable and undesirable characteristics (as an example, poisonous plants), threatened and endangered plants, and plant responses to various management approaches.
c. Range Ecology—response of rangeland plants and plant communities to grazing use and other management and treatment practices.
d. Range Inventories and Analysis—determining production, suitability, availability, utilization, condition, and trend.
e. Range Improvements—study of practices and developments used to manage and improve rangeland and its uses, including evaluating environmental impacts.
f. Ranch or Rangeland Planning—integration of range management principles into management plans for the administration and management of rangelands.

Directly Related Plant, Animal, and Soil Sciences

a. Plant Taxonomy—principles and methods, classification, and identification of representatives plant families, tribes, genera, and species.
b. Plant Physiology—photosynthesis, respiration, water relations of plants, mineral and organic nutrition, growth and development.
c. Plant Ecology—studies of the relationship of plants to their environment.
d. Animal Nutrition—nutrient utilization and measurement; nutrient requirements for various physiological functions, and for various animals.
e. Livestock Production—breeding, nutrition, management, and marketing of range livestock.
f. Soil Morphology—application of techniques used to describe soil.

or

(2) Soil Classification—soil classification

system with emphasis on the National Cooperative Soil Survey.

Related Resource Management Subjects

a. Wildlife Management—population dynamics, habitat needs, and special needs.
b. Watershed Management—studies of rangeland hydrology and watershed science to include runoff, infiltration, water quantity and quality, and techniques which can be employed to obtain desired results.
c. Natural Resource or Agricultural Economics—economic analysis, determining costs and benefits of alternatives, use in the decision process.
d. Forestry—study of the development, production, conservation, utilization, and protection of natural forest resources.
e. Agronomy—principles of plant, soil, and related sciences as they apply to forage production and conservation.
f. Forages—study of plants used for forage by animals, including their site needs, production, fertilization, and cultivation.
g. Outdoor Recreation Planning—planning, design, construction, and maintenance of land, water and related resources to provide opportunities for creative use of leisure time outdoors.

Consideration should also be given to the extent of preparation in more fundamental scientific fields, e.g., biology, zoology, genetics, chemistry, physics, and in other related fields, e.g., mathematics, statistics, surveying. Credit may also be given for education in directly useful additional subject areas such as communication skills (e.g., public speaking, technical writing, public information); individual and group relationship (e.g., psychology, sociology, political science); or economics. (While the above listings of applicable course work are extensive, they are not to be considered all-inclusive. Other course work which provides candidates with useful knowledges, skills, and abilities may be considered in ranking candidates, provided that the relationship between the knowledges, skills, and abilities and the work to be performed is demonstrable.)

For range scientist positions, the basic qualifying education is especially appropriate if it stressed work in plant ecology and plant physiology beyond the minimum levels; mathematics that included, as a minimum, college algebra, trigonometry, and calculus; and statistics.

2. *The quality of academic achievement*

Superior undergraduate academic achievement is accorded an extra grade (GS-7 only) for research and nonresearch positions. Such superior academic achievement should be reflected in the assignment of quality levels to education as well as in determining basic grade-level eligibility. However, in ranking candidates as GS-7, the education of a candidate who has completed one or more years of graduate education would normally be assigned a higher quality rating than superior undergraduate education. Consideration should also be given to the quality of education in terms of broad categories such as nonaccredited college, or college accredited by regional accrediting association.

3. *Nature of Experience*

All things being equal, the best experience is that which shows a regular progression in duties and responsibilities at least to a level demonstrating the applicant's ability to perform successfully at the level for which being considered.

Many range conservationist positions, particularly those at the GS-9 level and higher, involve a considerable amount of cooperative work with other agencies, organizations, and the public, and require the establishment and maintenance of sound, effective public relations. This requires competence in applying the principles of management and the behavioral sciences, as well as good communication skills. Consideration should be given to candidates who can demonstrate sufficient training or experience in establishing and maintaining sound public relations such as that they would be able to perform successfully the duties of the particular positions.

Similarly, some range conservationist positions require the application of administrative or managerial skills in addition to those basic "subject matter" knowledges listed under the Basic Requirements For All Grades. Candidates for positions which involve total resource management on rangelands should demonstrate possession of knowledges and abilitites such as:

—knowledge of and ability to use management principles, practices, and techniques, e.g., budgets, work plans, operational reports, mission and functional statements, organization and staffing charts, and similar management documents or devices;

—Ability to make sound decisions in matters offering several alternatives, subject to conflicting pressures, open to public scrutiny and criticism, and requiring judgmental conclusions based on numerous factors or indicators;

—Good judgment in matters of program strategy or emphasis, timing of operations, and priorities of projects or activities;

—Ability to supervise and motivate professional, scientific, technical, clerical, and other workers with varied backgrounds and occupational specialties;

—Abilities to establish and maintain sound, effective relationships with varied groups and individuals.

In ranking candidates for such positions, consideration should be given to candidates who demonstrate experience or training in these or closely related areas or activities. In other instances, they may be appropriate selective factors, particularly for managerial positions at the higher grade levels, e.g., GS-13. (For information on the use of selective factors, see section "Selective Placement" of this standard.)

4. *Accomplishments*

Considered here are the candidate's demonstrated knowledge of range conservation and related sciences, his/her professional interests as shown by self development activities, his/her stature in the profession, and his/her accomplishments, *considering opportunities for such.* This factor applies primarily to research positions but may also apply to other positions.

Judgments by coworkers or colleagues are highly important in appraising scientific accomplishments. Evidence used to appraise accomplishments include publications, participation in range conservation and other professional societies, leadership activities in the field of endeavor, honorary awards and other recognition, contributions to range conservation knowledge, and the like. Publications should be carefully appraised in terms of their total contribution to knowledge about the field, rather than judged by sheer volume. Citations by others as an authority, however, may serve as a partial index of the value of published work. The extent of professional recognition may be judged by such things as invitations to present papers before professional groups (international, national, regional, local); use of publications as a resource by other range conservationists; and activities in professional societies.

Range conservationists, as they advance in level of responsibility, are expected to engage in continuing and vigorous professional development as a method of keeping abreast of the field. Lack of evidence of this development legitimately may be considered as detracting from the overall quality level assigned. Accomplishments should be appraised in consideration of *the opportunities afforded by past assignments* and the level of these assignments.

BASIS OF RATING

No written test is required. Candidates' qualifications will be rated on a scale of 100, and will be evaluated on the basis of their education, training, experience, and personal qualifications in relation to the requirements of the specific positions for which they are being considered. Ratings will be based on the candidates' statements in the applications, and upon any additional evidence that may be secured through qualification inquiries or similar measurement devices used in the examination.

QUALIFICATIONS INQUIRIES

For all grades, confidential inquiries, including contacts with the candidates' supervisors and associates or with other persons familiar with their qualifications, may be made to obtain further information about their technical, professional, scientific and personal qualifications, and their character and suitability for these positions.

IN-SERVICE PLACEMENT ACTIONS

For purposes of applying qualification standards in in-service placement actions, persons serving in a position in the same series as the position to be filled are generally considered to be "grandfathers" and are not required to requalify for the position currently occupied. Nevertheless, in order for a candidate to be qualified for the next higher grade it is necessary that the candidate clearly show the ability to perform *professional* range conservation work. ***Mere occupancy of a professional range conservation position for a period of a year does not automatically qualify the employee for professional work at the next higher level.***

ACCEPTANCE OF TECHNICIAN EXPERIENCE

In competitive examinations technician experience may be accepted only toward meeting the professional experience requirements at GS-7.

In in-service placement actions only, technician experience will be accepted as equivalent to the professional range conservation experience required for the same grade when all of the following conditions are met:

(a) The employee is being considered for reassignment from a technician position in grade GS-7 or above to a very similar professional position in the same specialty area at the same grade or a lower grade;

(b) The employee meets the basic qualification requirements specified for all positions in the professional Range Conservation Series;

(c) The technician experience which is accepted in lieu of professional experience, is quasi-professional in character and is of the GS-7 or higher level; and

(d) The duties, degree of responsibility, and subject matter of the professional and technician positions are sufficiently similar to demonstrate clearly that the employee has the necessary background to perform satisfactorily the duties of the professional position to be filled.

MEDICAL QUALIFICATION STATEMENT

Applicants must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A. Physical Standards for Motor Vehicle Operators and Incidental Operators.

Range Aid GS–1/3
Range Technician GS–4/11

DESCRIPTION OF WORK

Range technicians perform nonprofessional and technical work in support of the management, conservation, development, utilization, and protection of rangeland and range resources for the continuous production of forage and related resources by livestock and big game; or perform similar work in connection with research activities related to range management and range conservation.

EXPERIENCE, TRAINING AND RELATED REQUIREMENTS

Experience Requirements

Candidates must have had experience as described below. (Appropriate education may be substituted for experience.)

Grade	*Length of experience*
GS–1	None.
GS–2	1 season or ½ year.
GS–3	2 seasons or 1 year.
GS–4	4 seasons or 2 years.
GS–5	3 years.
GS–6	4 years.
GS–7	5 years.
GS–8 and above	6 years.

Seasonal experience

A season of experience is considered to be a period of no less than three months, and no more than six months, of continuous employment on a seasonal basis. Shorter periods may be combined to make a season, provided a total of at least three months' experience is shown. For any period where the work exceeds six months, the excess work is credited toward an additional season of experience.

GS–1: No experience, training, or education is required. Candidates must be interested in and willing to learn and perform range aid work and show evidence of likelihood of success in this work.

GS–2 and 3: Candidates must have experience in the amount specified that provided familiarity with general range work operations, objectives, equipment, terminology, and safety practices, or which provided knowledges and skills that would be helpful in developing skill in gathering information, carrying out range practices and procedures, and dealing with range visitors. The experience should also demonstrate the ability to follow directions and to read, understand, and retain the variety of instructions, regulations, and procedures that are required in range technician work.

Such experience is most commonly gained in public or private forest or range operations, logging or sawmilling operations, fire control, farming, ranching, natural resources, or instructional work experience. The following are additional examples of qualifying experience for grades GS–2 and GS–3:

—Biological aid;
—Cartographic aid;
—Construction inspection aid;
—Engineering draftsman;
—Forest worker;
—Hydrologic aid;
—Irrigation systems operator;
—Job Corps experience in forestry, range, or soil conservation projects;
—Landscaping aid or gardener;
—Physical science aid;
—Plant pest control aid;
—Soil conservation aid;
—Surveying aid;
—Operator of engineering equipment;
—Firefighter;
—Helper in the construction trades.

NOTE: Part-time experience may be credited toward the experience requirements, regardless of whether any compensation was received for the work, and regardless of whether it was in a civilian or military environment.

GS-4 and above: Experience must have involved technical work which provided the knowledges and skills needed for work in carrying out range practices and procedures. The experience must have provided the candidates with knowledge of some of the pertinent principles, methods, and techniques of range conservation, and a basic understanding of multiple use.

At any grade level the total amount of the experience specified need not be directly in range work. But, the sum total of a candidate's experience must provide the knowledges, skills, and abilities (including knowledge of range management and conservation principles and practices) applicable and required to perform work at the level of the range technician position to be filled.

The experience must have included actual range management and conservation work similar to that performed to support or complement professional and scientific range management and conservation work. Examples of qualifying experience are (1) experience gained in the conservation, regulation, and use of public or Federally controlled lands for grazing, (2) experience gained in range research activities, (3) experience in the operation of a livestock ranch or in assisting in the use of lands comparable to the public range, or (4) experience in range or forest fire control, prevention, or suppression.

GS-5: At least one year of the required experience must have been comparable in difficulty and responsibility to the GS-4 grade level.

GS-6 through GS-11: At least one year of required experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or two years comparable to the second lower grade in the Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's total record of experience and education must demonstrate that he possesses the ability to perform the duties of the position.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for Supervisory Positions in General Schedule Occupations, in part III of this handbook also applies.

ABILITY TO WORK WITH OTHERS

Many of these positions involve contact with the public to explain procedures and aspects of programs, in order to enlist the public's understanding, cooperation, and support of these aspects of agency operations. For such positions candidates must demonstrate that they have the required ability.

ADDITIONAL TECHNICAL KNOWLEDGES AND SKILLS REQUIRED FOR SOME RANGE TECHNICIAN POSITIONS

Some range technician positions require the application of highly specialized technical knowledges and skills in particular phases or types of work, e.g., range research. For such positions, candidates must show that their experience and training have given them the specific technical knowledges and skills needed to perform the duties of the specific positions for which they are being considered.

USE OF SADDLE AND PACK HORSES

Some of these positions require the incumbent to use saddle or pack horses to pack supplies and equipment over mountainous, remote or otherwise inaccessible terrain, or to perform work in such areas. For such positions, only persons with appropriate training and experience in the handling or use of saddle horses and pack animals will be considered.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the

experience requirements at the various grade levels, as specified below:

GS–2: Graduation from a full 4-year or senior high school, or possession of a General Education Development High School Equivalency Certificate, may be substituted in full for the experience requirements at the GS–2 level. (High school education, or the General Education Development High School Equivalency Certificate, may not be substituted for any part of the experience requirements for GS–3 and above.)

GS–3: One academic year of post-high school education that included some course work in subjects such as range management or conservation, agriculture, forestry, wildlife management, engineering, biology, mathematics, or other natural or physical sciences may be substituted for one year of experience, and meets in full the requirements at the GS–3 level.

GS–4: Two years of post-high school academic study, which included at least 12 semester hours in any combination of subjects such as forestry, range management or conservation, wildlife management, watershed management, soil science, natural resources (except marine fisheries and oceanography), outdoor recreation management, civil or forest engineering, or wildland fire science may be substituted for two years of experience. This meets in full the experience requirements at the GS–4 level.

GS–5: Successful completion of (a) a full 4-year course in a college or university leading to a bachelor's degree with major study in forestry, range management, or a closely related subject-matter field, or (b) four years of post-high school academic study which included at least 24 semester hours in any combination of courses listed under GS–4 above may be substituted for three years of experience. This meets in full the experience requirements at the GS–5 level.

Appropriate education and training other than that outlined above, such as in manpower development programs or military training programs, will be granted credit on a month-for-month basis.

At any grade, post-high school education or training which is acceptable under these standards may be substituted for part of the required experience on a pro rata basis.

The maximum amount of experience for which education of any kind may be substituted is three years.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

Most candidates must either hold, or obtain within 30 days of employment, appropriate State and U.S. Government motor vehicle operators' permits.

BASIS OF RATING

Competitors for all positions will be rated on the quality and extent of experience, education, or training in relationship to the duties of the positions. No written test is required.

SELECTIVE PLACEMENT

For positions that require particular knowledges and skills, consideration may be restricted to those candidates whose background indicates that they possess the required knowledges and skills.

INSERVICE PLACEMENT ACTIONS

Credit for High School Education

For inservice placement actions, high school education may be credited in accordance with the "add-on rule," that is, the employee need show only that he has acquired the additional qualifications required for the new position. Thus, a high school graduate appointed at GS–2 needs six months of experience to qualify for a grade GS–3 position.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for aid positions at GS–2 and GS–3 should have the ability to use high school level mathematics, the ability to read and understand simple instructions and procedures, the ability to learn range aid duties, and the ability to work as a member of a team.

At the higher grade levels, range technicians need to know and be able to apply, or possess

knowledges, skills, and abilities such as the following:

—Ability to read and interpret technical range plans;
—Knowledge and ability to use range practices, formulas, and measurement systems in the specialty field;
—Knowledge of and experienced judgment in selecting technical guidelines and reference materials, including precedents;
—Ability to prepare analytical reports;
—Knowledge of safety practices;
—Ability to meet, deal, and maintain courteous relations with technicians, range managers, foresters, local residents, public officials, user agency representatives, etc.;
—Ability to operate independently, often in dispersed locations, without immediate supervision.

Evaluation of Education and Experience

Evaluation of education and experience for both open-competitive and inservice placement actions logically includes the degree and scope of the candidate's knowledge, skills, and abilities, which can be used in performing the duties of the position to be filled. Such knowledges and abilities may have been obtained on the job or in courses related to the work of the position, or both.

In ranking candidates, detailed facts about the position requirements need to be determined. For a position which requires specialized knowledge and abilities, experience gained in the particular kind of work and in the same or a directly related field as the position to be filled normally should be ranked as highest quality. Experience in work which is similar to the duties of the position but in a less closely related occupation generally should be ranked at lower levels.

Methods of Evaluation

Useful procedures for evaluating candidates for technician positions are described in *FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement.* Several procedures, including job element rating, are suggested in this material. One or more of them may be appropriate for the types of positions classified in this series.

PHYSICAL REQUIREMENTS

A. *For all except positions classed as extremely arduous and hazardous*

Candidates must be physically able to perform the duties of the position efficiently. Good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. The duties of most positions require the ability to distinguish either basic or shades of color; however, there may be a few positions which do not require that ability, and candidates with defective color vision will receive consideration. Ability to hear the conversational voice, with or without a hearing aid, is required. For most positions, candidates with an amputation of arm, hand, leg, or foot will not qualify for appointment; however, there may be a few positions suitable for persons with such handicaps. Candidates must possess emotional and mental stability. Any physical condition which would cause the candidate to be a hazard to himself or to others will disqualify for appointment.

Immunization: At time of appointment, appointees may be required to undergo tetanus immunization.

B. *For positions classed as extremely arduous and hazardous*

Any physical defect which would cause the candidate to be a hazard to himself or to others, or which would prevent efficient performance of the duties of the position, will disqualify for appointment. Incumbent may be subject to periodic examinations following appointment. If it is determined that a physical defect is present which causes the employee to be a hazard to himself or to others, or which prevents efficient performance of the duties of the position, the person's employment in the position may be terminated.

The duties of these positions require arduous physical exertion under rigorous and unusual

conditions. Persons appointed will be subject to extreme physical danger and to irregular and protracted hours of work. Any structural or functional limitation or defect which tends to interfere materially with a high degree of physical activity will disqualify a candidate for appointment.

Girth of abdomen should not be greater than measurement of the chest at rest. No height or weight limitations are specified, but weight must be in proportion to height as an indication of the stamina and vigor needed to sustain arduous work through extended or irregular periods or under unusual mental, physical, or psychological pressures.

Eyes: Distant vision, without glasses, must test at least 20/50, Snellen, in one eye and at least 20/100, Snellen, in the other. Near vision, glasses permitted, must be acute for reading without strain printed material the size of typewritten characters. Candidates must be able to read any 15 of the 20 plates (demonstration plates excluded), American Optical Co., Pseudoischromatic Test plates (1940 issue), or successfully pass the Edridge-Green lantern test. Candidates must be free from acute or chronic eye disease.

Ears: Candidates must be able to hear the normal spoken voice at 20 feet, each ear, and the whispered voice at 15 feet, each ear. Use of hearing aid is not permitted. Candidates must be free from acute or chronic disease of the external, middle, or internal ear.

Nose, mouth, and throat: Candidates must be free from conditions which interfere with distinct speech or with free breathing. Acute or chronic sinus disease or diseased tonsils must not be present.

Teeth: Candidates must be free from gross dental infection and Vincent's disease. They must have sufficient teeth natural or prosthetic to insure proper incision and mastication of food.

Lungs: The following conditions are causes for rejection of a candidate: A history of pulmonary tuberculosis with other than minimal involvement and arrested or healed for a period of less than five years; or other acute or chronic disease of the lungs.

Heart and blood vessels: The following conditions are causes for rejection of a candidate for appointment: Organic heart disease, compensated or not; valvular diseases; murmurs which are not cardiorespiratory in origin; coronary heart diseases; cardiac enlargement; angina pectoris; a persistent pulse rate at rest which exceeds 110 or is less than 50; cardiac arrhythmia or irregularity other than sinus arrhythmia; arteriosclerosis; or a blood pressure reading which exceeds 150, systolic, or 90, diastolic, or which is less than 100, systolic, or 60, diastolic. If the initial blood pressure reading exceeds 150, systolic, or 90, diastolic, serial blood pressure readings will be taken and the average thus obtained will be the value to be considered.

Abdomen: The following conditions are causes for rejection of a candidate for appointment: Acute or chronic diseases of the abdominal viscera; a history of gastric or duodenal ulcer; significant enlargement of the liver or spleen. Hernia, any type, will be cause for suspension from the register until medical evidence is furnished showing the condition to have been remedied.

Genitourinary: A macroscopic and microscopic examination of the urine will be made at the time of examination. The following conditions will disqualify a candidate for appointment: Acute or chronic genitourinary diseases; diabetes; acute or chronic prostatitis; large or painful varicocele or hydrocele with functional impairment. If there is a history of a venereal infection, satisfactory evidence of adequate treatment must be furnished.

Spine, pelvis, sacroiliac, and lumbosacral joints: Candidates must have free mobility of spine and pelvic joints. The following conditions will disqualify a candidate for appointment: Any significant curvature of the spine, deformity or malformation of the parts; a history of herniated nucleus pulposus with or without surgery; or spondylelisthesis.

Extremities: The following conditions will disqualify a candidate for appointment: Anom-

alies in the number, form, proportion, and movements of the extremities which produce significant deformity or which interfere with function. These conditions include un-united fractures and nonreducible dislocations or united fractures and reduced dislocations with incomplete restoration of function; amputation of arm, hand, leg, or foot; loss of any portion of the thumb of either hand; loss of more than the distal phalanx or index or middle fingers of either hand; loss of more than the two distal phalanges of the ring or little fingers of either hand; ankylosed joints; varicose veins other than mild in degree; pes cavus; flatfoot with symptoms; weakfoot; clubfoot; loss or deformity of great toe or any two on the same foot or any condition which interferes with function or will prevent efficient performance of duty.

Nervous system: Candidate must be free from emotional instability and have no history of psychosis. The following conditions will disqualify a candidate for appointment: Epilepsy; chronic alcoholism or drug addiction; paralysis or paresis; or muscular atrophies or distrophies.

Skin: The following conditions will disqualify a candidate for appointment: Psoriasis or epitheliosis if more than of slight degree; extensive scarring which interferes with function; or chronic skin disease resistant to treatment.

Other defects: Any serious deviation from sound physical condition will be ground for rejection of a candidate regardless of whether or not the condition is named above. Remediable defects or curable diseases will not exclude a person from examination but proof that such defects have been remedied or the disease cured must be received during the life of the eligible register before persons otherwise qualified may be considered for appointment under civil service rules.

SOIL CONSERVATION SERIES[1]

Soil Conservationist GS-5/15

DUTIES STATEMENT

Soil conservationists perform professional work such as the following:

—Advise and work with landowners to develop soil and water conservation plans for farms, ranches, housing developments, public buildings, airports, recreation areas and other land uses.

—Advise and work with officials of a soil and water conservation district to develop a comprehensive soil and water conservation program which serves a number of communities.

—Advise and work with government agencies or private groups to develop broad plans and recommendations for the orderly development of the natural resources in the area.

—Coordinate broad rural development or multiple-purpose development projects.

—Manage broad soil and water conservation programs.

BASIC REQUIREMENTS FOR ALL GRADES

Candidates for positions at all levels must show successful completion of paragraph A or B:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in soil conservation, or one of the closely related natural resource or agricultural fields, such as agronomy, forestry, wildlife biology, regional planning, agricultural education or agricultural engineering. The study must have included 30 semester hours in natural resources or agricultural fields including the equivalent of a 3 semester hour course in soils.

B. A total of at least 30 semester hours of course work in one or more of the fields listed above in paragraph A, including the equivalent of a 3 semester hour course in soils, plus additional education or experience which, when combined with the 30 semester hours of course work, will total 4 years of education or 4 years of combined education and experience. The quality of such additional education or experience must have been sufficient to give the candidate professional knowledge equivalent to that normally acquired through the successful completion of a full 4-year course of study described in paragraph A.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in or be directly related to soil conservation. This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade	Minimum amount of professional experience in appropriate subject-matter fields (years)
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 1 year of the required experience must have been at the level of difficulty comparable to the second lower grade in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

[1] This standard supersedes the standard for this series which was issued in December 1966.

2. *Education*

In addition to the basic requirements, the following amounts and level of education are qualifying for grades GS-7 and above as shown:

Grade:	Minimum amount or level of education in appropriate subject-matter fields
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph.D. or equivalent); *or* Three full academic years of graduate education.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS-7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS-9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook. This standard requires that the candidates demonstrate (1) that they have the personal attributes that are important to success in supervisory or managerial jobs, and (2) that they possess, or have the potential to develop, the supervisory or managerial abilities needed for the position to be filled.

WRITTEN TEST

No written test is required.

BASIS OF RATING

Applicants will be rated on the basis of the quality and extent of their total education, training and experience. Ratings will be based on statements in the application form and any additional evidence received by the Commission.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

INTERVIEW REQUIREMENTS

Candidates may, at the option of the agency, be required to appear for a pre-employment interview to evaluate skill in personal relationships for the public contact aspects of soil conservation work.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

Most candidates must either hold, or obtain within 30 days of employment, appropriate State and U.S. Government motor vehicle operators' permits.

SELECTIVE PLACEMENT

For positions that require particular knowledges and skills, consideration may be restricted to those candidates whose background indicates that they possess the required knowledges and skills. While soil conservationists apply an understanding of the principles of a variety of disciplines, some positions emphasize a particular combination of disciplines which are applied more intensely than others. Duties vary with the assignment depending on the specific nature of the program being administered, types of communities involved and the type of areas served.

For example, where work involves a substantial amount of day-to-day contact with farmers and ranchers, a primary requirement of the position is that the soil conservationist be able to

apply a thorough knowledge of the pertinent farm and ranch practices in negotiations and dealings with landowners and tenants. Such positions should be filled selectively, on the basis of the candidate's technical and scientific training in an appropriate field of agriculture, or by his having lived or worked in an agricultural situation long enough to be thoroughly familiar with farm or ranch work and its problems.

Other positions may require specialized knowledge of a subject, e.g., rural development, watershed planning, forestry, or wildlife conservation. All positions requiring selective placement shall be filled on the basis of the job demands, and only those applicants whose total background shows that they possess the knowledges, abilities and skills needed to meet these job demands will be considered eligible for such positions.

GUIDE FOR EVALUATION OF CANDIDATES

The nature and quality of the basic education is of most value in evaluating candidates at the entrance levels—GS-5, GS-7—and, to some extent, GS-9. As compared with experience, undergraduate training is of less significance at succeedingly higher levels.

1. *Education*

Although positions in the Soil Conservation Series require application of some of the methods and skills of a variety of disciplines, education that has provided advanced knowledge and skills in a specialized subject-matter area is more valuable than education that has provided broad but general knowledge and skills. In addition to this specialized background of particular value are general education courses in public administration or political science, economics, public speaking, civil engineering, surveying, English composition, and sociology or psychology. Introductory courses in soil management, forest soils and soil fertility are examples of qualifying courses in soils. Courses in the physical sciences or engineering, such as geology, civil engineering and hydrology, may also be qualifying. In any case, the required course work must have included a complete introduction to soils.

2. *Experience*

Scientists characteristically borrow and apply techniques, principles and methods from other scientific fields, particularly from closely related fields. Consequently, experience gained in a specialized field such as soil science, forestry or agronomy can be as fully acceptable as experience gained in soil conservationist positions. This is especially true for experience that involved application of specialized knowledge and skills toward the solution of a variety of soil and water conservation problems, requiring not only knowledge of the objectives and goals of soil and water conservation, but also knowledge of the interdisciplinary approach to soil and water conservation problems. Regardless of how acquired, experience that involved the use of techniques, principles and methods from a variety of agricultural and natural resource fields is especially valuable because of the interdisciplinary nature of this occupation.

3. *Personal abilities and characteristics*

There are differences in emphasis or orientation among positions in the Soil Conservation Series. One position may require demonstrated abilities in personal communication and leadership. Another may emphasize planning and technical skills. Still another may require all of these skills, none of which significantly outweighs the others in degree of importance. These differences make it desirable to identify the specific skills appropriate to a position, or group of positions, and to evaluate candidates with respect thereto.

Following are some of the abilities and personal characteristics most important in soil conservation positions. They may be given weight as appropriate for the position for which being considered. These have primary applicability in selecting candidates for promotion rather than in evaluating the qualifications of recent graduates.

—Planning ability;
—Coordinating ability;
—Leadership ability;

—Ability to persuade or motivate groups;
—Initiative and resourcefulness;
—Managerial ability;
—Supervisory ability;
—Public speaking and public relations abilities;
—Writing ability;
—Adaptability;
—Drive and enthusiasm;
—Ability to work with others on a team;
—Ability to work with certain population groups.

4. *Methods of evaluation*

Methods of value in appraising employees' qualifications and promotion potential are discussed in FPM Supplement 335-1, Evaluation of Employees for Promotion and Internal Placement.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 9. In addition, applicants must possess emotional and mental stability.

SOIL CONSERVATION TECHNICIAN SERIES[1]

Soil Conservation Aid GS-1/3
Soil Conservation Technician GS-4/9

DESCRIPTION OF WORK

Soil conservation technicians apply knowledge of soil conservation methods, techniques, and practices, and of agricultural land use. They perform work such as the following:

—advise farmers on the installation and maintenance of conservation practices or systems of conservation practices, e.g., contouring, stripcropping, seeding, terracing, and irrigation and drainage systems;

—gather planning data for use in development of conservation plans;

—conduct followup visits with farmers to further advise and assist on the installation or maintenance of conservation practices; to recommend adjustments or revisions to conservation plans; to assess rate of progress in carrying out conservation plans; and to assess acceptability of installed practices involving cost sharing or lease agreements;

—provide information on soil and water conservation practices, benefits, and activities to local individuals, groups, and news media.

EXPERIENCE, TRAINING AND RELATED REQUIREMENTS

Experience requirements

Candidates must have had experience as described below. (Education may be substituted for experience.)

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-1	0	0	0
GS-2	½	0	½
GS-3	1	0	1
GS-4	1½	½	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5
GS-8 and above	2	4	6

[1] This standard supersedes the standard for this series issued in September 1966.

General experience.—General experience is that which provided familiarity with general farm operations, equipment, and terminology, or which provided knowledges and skills that would be helpful in developing skill in laying out conservation practices, gathering farm resource data, and dealing with farmers and ranchers. In addition to any kind of farm, ranch, or sales experience which provided a basic knowledge of general farm operations, equipment, and terminology, the following are examples of qualifying general experience:

—range conservation aid;
—irrigation systems operator;
—surveying aid;
—forestry aid;
—biological aid;
—plant pest control aid;
—engineering aid;
—construction inspection aid;
—draftsman;
—job corps experience on forestry or conservation projects.

NOTE: Part-time farming or ranching experience may be credited toward the general experience requirements, regardless of whether any compensation was received for the work.

Specialized experience.—Specialized experience is technical work which provided knowledges and skills needed for advising farmers and ranchers on the installation and maintenance of soil and water conservation practices. The work must have provided knowledge of conservation practices, knowledge of equipment used for installing and maintaining conservation practices, and a basic understanding of agricultural land use. The following are examples of qualifying specialized experience:

—engineering or forestry experience which involved the installation and maintenance of soil and water conservation practices on nonfarm or ranch lands and which, when combined with the required knowledge of farm operations and equipment, provide the essential knowledge and skills needed for successful performance of the work;

—farming or ranching experience which involved installation and maintenance of soil and water conservation practices, including knowledge of equipment used in installing and maintaining conservation practices, and which provided a basic understanding of agricultural land use.

REQUIRED AGRICULTURAL KNOWLEDGES AND ABILITIES

Candidates for positions at GS–3 and above must have a knowledge of farm or ranch operations, and the ability to work with rural people, communicate with them effectively, and understand their problems. Only those candidates who demonstrate that they possess such knowledges and abilities will be eligible.

Some positions may require specialized knowledge such as for contouring and terracing. For such positions, eligibles must demonstrate possession of the required knowledge.

QUALITY AND LEVEL OF EXPERIENCE

For grade GS–1, no experience, training, or education is required. Candidates must be interested in and willing to learn and perform soil conservation aid work, and show evidence of likelihood of success in these assignments.

For grades GS–2 and GS–3, the general experience requirements are broad in intent and do not include any specialized knowledge of soil and water conservation practices.

For grade GS–4, the 6 months of required specialized experience must have been comparable in difficulty and responsibility to the GS–3 grade level.

For grade GS–5, at least 1 year of the required experience must have been comparable in difficulty and responsibility to the GS–4 grade level. At least 6 months of this experience at the GS–4 level must have been specialized experience.

For grades GS–6 through GS–9, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must demonstrate that he possesses the ability to perform the duties of the position.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook will apply.

WRITTEN TESTS

No written test is required.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

GS–2: Graduation from a full 4-year or senior high school, or possession of a General Educational Development High School Equivalency Certificate, may be substituted in full for the experience requirements at the GS–2 level. (High school education, or the General Educational Development High School Equivalency Certificate, may not be substituted for any part of the experience requirements for GS–3 and above.)

GS–3: One academic year of appropriate post-high-school education that included some course work in biology, physical science, forestry, engineering, agriculture, or mathematics may be substituted for 1 year of experience, and meets in full the experience requirements at the GS–3 level.

GS–4: Two years of post-high-school academic study, which included at least 12 semester hours in any combination of the subjects as listed above for GS–3, may be substituted for 2 years of experience including ½ year of spe-

cialized experience. This meets in full the experience requirements at the GS–4 level.

GS–5: Successful completion of (*a*) a full 4-year course in a college or university leading to a bachelor's degree with major study in an appropriate field of agriculture, or (*b*) 4 years of academic study which included at least 24 semester hours in any combination of the courses listed under GS–3 above, may be substituted for 3 years of experience, including 1 year of specialized experience. This meets in full the experience requirements at the GS–5 level.

Appropriate education and training other than that outlined above, such as in manpower development programs or military training programs, will be granted credit on a month-for-month basis.

At any grade, post-high-school education or training which is acceptable under these standards may be substituted for part of the required experience on a pro rata basis.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

Candidates must either hold, or obtain within 30 days of employment, appropriate State and U.S. Government motor vehicle operators' permits.

BASIS OF RATING

Competitors for all positions will be rated on the quality and extent of experience, education, or training in relationship to the duties of the positions. Ranking will be made on the following basis:

For GS–1: An evaluation of the candidate's willingness to do simple and repetitive soil conservation aid work to learn simple procedures; his dependability; and his ability to work safely.

For GS–2 and above: An evaluation of experience, education and training in relation to the duties of the position.

INSERVICE PLACEMENT ACTIONS

Credit for high school education

For inservice placement actions, high school education may be credited in accordance with the "add-on" rule, that is, the employee need show only that he has acquired the additional qualifications required for the new position. Thus, a high school graduate appointed at GS–2 needs 6 months of experience to qualify for a grade GS–3 position.

Waiving directly applicable specialized experience requirement at GS–4 and GS–5

For inservice placement actions only, the requirement for specialized experience for positions at grades GS–4 and GS–5 may be waived for lateral reassignment of employees in related technician occupations provided:

1. The candidate has had experience which has provided knowledge of the work of the position for which he is being considered; and
2. A review of the candidate's experience and performance indicates that he possesses the necessary skills and abilities, and evidences definite potential for successful performance of the work.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for beginning level aid positions should have the ability to learn or use high school level mathematics, the ability to read and understand simple instructions and procedures, the ability to learn soil conservation aid duties, and the ability to work as a member of a team.

At the higher levels, soil conservation technicians need to know and be able to apply, or possess, knowledges, skills, and abilities such as the following:

1. Knowledge and ability to advise on the installation and maintenance of conservation practices.
2. Knowledge of the use of equipment in installing and maintaining conservation practices.

3. Knowledge of and experienced judgment in selecting technical guidelines and reference materials, including precedents.
4. Ability to meet, deal, and maintain friendly relations with farmers, ranchers and other members of rural communities. Knowledge of agricultural land use and ability to gather planning data.
5. Knowledge of basic surveying instruments and their use.
6. Knowledge of basic soil fertility and crops.
7. Knowledge of the use of aerial photographs and maps.

Evaluation of education and experience

Evaluation of education and experience for both open-competitive and inservice placement actions logically includes the degree and scope of the candidate's knowledge, skills, and abilities which can be brought to bear upon duties of the position to be filled. Such knowledge and abilities may have been obtained on the job or in courses related to the work of the position.

In ranking individuals, detailed facts about the position requirements need to be established. For a position which requires specialized knowledge and abilities, experience gained in the particular kind of soil and water conservation practices, soils, and agricultural enterprises involved in the position to be filled should normally be ranked as highest quality. Experience in work which is similar to the duties of the position but in a less closely related occupation generally should be ranked at lower levels.

Methods of evaluation

Useful procedures for evaluating candidates for technician positions are described in FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement. Several procedures, including job element rating, are suggested in this material. One or more of them may be appropriate for the types of positions classified in this series.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 9. In addition, candidates must possess emotional and mental stability.

Forester (all specializations) GS–5/15

DESCRIPTION OF WORK

Foresters perform professional and scientific work in the development, production, conservation, and utilization of the natural resources of forests and associated lands; the inventory, planning, evaluation, and management of each forest resource including timber, soil, land, water, wildlife and fish habitat, minerals, forage, and outdoor recreation including wilderness, in relationship with each other to meet both present and future public and local private needs and demands; the protection of resources against fire, insects, disease, floods, erosion, and other depredations; the valuation, management and protection of forest lands and properties; the interpretation and communication of principles, facts and legislation upon which the management of forest land rests; and the development of new, improved, or more economic scientific methods, practices, or techniques necessary to perform such work.

BASIC REQUIREMENTS FOR ALL GRADES

1. Candidates for Forester positions must demonstrate successful completion of the requirements in paragraph A or paragraph B below:

A. A full 4 year or longer course of study in an accredited college or university leading to a bachelor's or higher degree with major study in forestry or a closely related subject-matter field. This course of study must have included a total of at least 30 semester hours in any combination of biological, physical, or mathematical sciences or engineering of which at least 24 hours of course work are in forestry.

The curriculum must be diversified sufficiently to include at least 8 semester hours in each of the following areas:

Management of Renewable Resources.—Courses in this area are concerned with study of the science and art of managing renewable resources to attain desired results. An illustration of creditable courses in this area include silviculture, forest management operations, timber management, wildland fire science or fire management, utilization of forest resources, forest regulation, recreational land management, watershed management, and wildlife or range habitat management;

Forest Biology.—Courses in this area are concerned with the study of the classification, distribution, characteristics and identification of forest vegetation and the interrelationships of living organisms to the forest environment. Illustrations of creditable courses in this area include dendrology, forest ecology, silvics, forest genetics, wood structure and properties, forest soils, forest entomology, and forest pathology;

Forest Resource Measurements and Inventory.—Courses in this area are concerned with the sampling, inventory, measurement and analysis techniques as applied to a variety of forest resources. Illustrations of creditable courses include forest biometrics, forest mensuration, forest valuation, statistical analysis of forest resource data, renewable natural resources inventories and analysis, and photogrammetry or remote sensing.

B. A total of at least 30 semester hours of course work in an accredited college or university in any combination of biological, physical, or mathematical sciences or engineering of which at least 24 semester hours are in forestry. The requirements for diversification of the 24 semester hours in forestry are the same as specified in paragraph A, above. In addition to these requirements, a candidate must have additional education or experience which, when combined with the 30 semester hours of course work, will total 4 years of education or 4 years of combined education and experience.

The quality of such additional education or experience must have been sufficient to give the candidate professional and scientific knowledge equivalent to that normally acquired through the successful completion of a full 4-year course of study as described in A above. In combining undergraduate education with experience, an academic year of study which comprises 30 semester hours or 45 quarter hours will be con-

sidered equivalent to 9 months of experience.

2. Candidates for Forester (Administration) or Research Forester (Administration) must have completed the requirements described in paragraphs A or B above, or the minimum educational requirements established for other forestry related professional disciplines, e.g., Range Conservationist, GS–454; Soil Scientist, GS–470; Wildlife Biologist, GS–486; Geologist, GS–1350; Landscape Architect, GS–807; Hydrologist, GS–1315; or the full 4-year college requirements which have been described for All Professional Engineering Positions, GS–800, provided that the basic professional training has been supplemented by a sufficient amount of professional experience, gained in a forestry work situation, to give the candidate a full professional knowledge of forestry administration. The supplemental experience must have been gained in a work situation where the program or project required the joint application of full professional knowledges of forestry and the related professions in the solving of highly technical and complex problems, where the work was largely concerned with the planning, developmental, and administrative phases of multiple-use, forest land mangement programs, or with the carrying out of related research or special projects of a similar nature.

The total education and experience shown must clearly demonstrate that the candidate can perform the technical and administrative duties of the grade of the position for which he/she is being considered.

3. Candidates for positions which involve highly technical research or similar complex scientific functions, must have successfully completed the full 4-year course of study described in paragraph A above.

GS–5: The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, forestry, e.g., civil engineering, wildlife management, range conservation, or soil science, where the experience or study dealt with problems directly related to forestry.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he/she is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at appropriate grade level.

1. Experience

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. Education

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.

	Minimum amount of professional experience in appropriate subject-matter fields
GS–11 ------	Completion of all requirements for a doctoral degree (Ph.D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions --	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions --	Completion of all requirements for a doctoral degree (Ph.D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph.D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. Combinations of professional experience and graduate education

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (See the Introduction to Handbook X–118, Part II, Section III, for specific information on crediting "full time" and "part time" graduate study.)

4. Alternate requirements

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in Section III of Part II, Instructions to Users, of this handbook must be met.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provision of the "Amended Educational Requirement for Most Professional Positions in Science and Technology," which deals with acceptance of education leading to a bachelor's or higher degree in an appropriate field of science or technology which does not fully or literally satisfy the basic educational requirement specified for the occupation. (See pages 15.02 to 16.05 in the Introduction to Handbook X–118, Part II, Section III, for specific requirements for application of this amendment.)

AMENDED EXPERIENCE REQUIREMENT

This standard is subject to the general amendment concerning specialized experience requirements in non-competitive actions which deals with acceptance of different kinds of experience toward meeting the specialized experience requirements, when the total background of the candidate demonstrates that he/she possesses full journeyman knowledge or professional competence in the forestry occupation and has the necessary level of skills, knowledge, and abilities necessary to do the work. This provision is important in situations, for example, where a forester has been transferred under an executive development assignment to another

series for management development purposes. (See the section on "Evaluating Specialized Experience: A General Amendment to Certain Qualification Standards" in the Introduction to Handbook X–118, Part II, Section III, for specific requirements for application of this amendment.)

Forester (Administration).—For positions at GS–9, GS–11, and GS–12, candidates must show that they have the ability to deal satisfactorily with professional, scientific, and technical workers, and that they are familiar with the methods and procedures used to supervise, administer, and manage the particular type of professional and scientific work involved in the type of program in which they will be engaged.

For positions at GS–13 and higher grades, candidates must show that they have had sufficient experience in dealing with professional, scientific, and technical workers, and in supervising or administering the work of technical forestry, multiple use, or related resource management programs: (1) to have a thorough knowledge of the methods and procedures used in supervising, managing, and administering the type of program in which they will be engaged; and (2) to deal satisfactorily with the workers and supervise or administer the program effectively.

Research Forester (Administration).—Such positions may require the ability to supervise and direct a highly trained scientific staff working in a number of different disciplines. For such positions, candidates must show that they are thoroughly familiar with the scientific principles and concepts involved, can cooperate and work with others in a team approach to research, and have the scientific stature and leadership qualities needed to lead and direct a group of research workers.

Research Forester.—Many Research Forester positions are highly specialized and may require different types of education, training, and experience either in forestry research or in a field of research directly related to forestry research. For these positions, candidates must show that they have had sufficient education, training, and experience to give them the knowledge, abilities, and skills needed to perform successfully the duties of the position for which they are being considered. For all research positions at the GS–12 and higher grades, candidates must show that they have the ability to analyze and interpret the results of research, and that they are able to prepare this material for publication.

CREDIT FOR CREATIVE OR OUTSTANDING RESEARCH

Candidates for research positions who can furnish positive evidence that they have performed highly creative or outstanding research which meet the criterion described below, may be rated eligible for the next higher grade than that for which they would normally be rated. (A candidate who achieves a higher grade on the basis of the graduate study provisions is not eligible for an additional grade based on this criterion.)

To receive such credit, the work must have been creative in the sense that it produced a basic principle, concept, method, approach, or technique or provided a body of basic information, that opened the way for major advances in the discipline or field of science involved, or to advances in science in general. Such research must have been on previously unsolved problems which involved the introduction of unorthodox assumptions, idealizations, approaches, scientific concepts, techniques, or relationships which were not obvious and which had not previously been perceived by authorities in the field, or, it may have involved the rejection of assumptions,, idealizations, approaches, scientific concepts, techniques, or relationships which had previously been held valid in the discipline or field of science involved.

SELECTIVE PLACEMENT

A varying amount of selectivity is required to fill certain research or non-research forester positions. While most, if not all, foresters perform work in and apply an understanding of the principles of the broad field of forest resource management, some positions require that particular kinds or combinations of knowledges be

applied more intensely than in other positions. In some cases, therefore, it may be appropriate to use selective placement techniques, i.e., only those candidates who have appropriate education, training, and experience should be referred for employment consideration. Where selective factors are used, however, they must be demonstrably related to the knowledges, skills, abilities, and other characteristics considered *essential* to produce candidates capable of performing the duties of the positions satisfactorily. The factors should represent *minimum* acceptable qualifications for the job of interest.

The appropriateness of the factors should be reflected in the duties and responsibilities of the position as presented in the position description or in other official information provided by the agency. Additionally the use of these factors must not result in the establishment of an unreasonably high or overly restrictive requirement. That is, the proposed selective factors should not be used if it is evident that other eligibles could perform satisfactorily after a customary training period.

GUIDE FOR THE EVALUATION OF CANDIDATES

The following factors are suggested for consideration in evaluating or rating candidates' *relative* qualifications:

1. *The extent, nature, and content of qualifying basic education.*—The nature, extent, and content of education are of primary importance in evaluating qualifications of candidates for positions at the lower grades, GS–5/7. At the higher levels, they are also important, but it is necessarily subordinated to proven professional capability as demonstrated through experience.

The standard states, in paragraph 1A, only the minimum education a candidate must have to be able to learn and perform forestry work. A candidate with just the type and amount of education specified is rated eligible, but is considered only minimally qualified or prepared for the work. In ranking candidates it is important to consider whether a particular candidate: (1) has substantially more than the minimum of 30 semester hours required; (2) has substantially more than the minimum 24 semester hours in forestry courses, and (3) has substantially more than 8 semester hours in each of the 3 broad curricula areas defined in paragraph 1A, "Basic Requirements for All Grades." Consideration should also be given to the extent of preparation in related or more fundamental scientific fields, and in directly useful additional subject areas in the behavioral arts and sciences, e.g., individual and group relationships (psychology, sociology), public or business administration, and economics.

2. *The quality of academic achievement.*—Superior undergraduate academic achievement is accorded an extra grade (GS–7 only) for research and non-research positions. Such superior academic achievement should be reflected in the assignment of quality levels to education as well as in determining basic grade-level eligibility. However, in ranking candidates at the GS–7 level, the education of a candidate with appropriate graduate level education should be assigned a higher quality rating than superior undergraduate education. Consideration should also be given in terms of broad categories such as non-accredited college, college accredited by regional accrediting associations, and forestry schools which meet the high standards of the professional accrediting association, the Society of American Foresters.

3. *Nature of experience.*—Many forester positions, particularly those at the GS–9 level and higher, involve a considerable amount of cooperative work with other agencies, organizations, and the public, and require the establishment and maintenance of sound, effective public relations. This requires competence in applying the principles of management and the behavioral sciences, as well as good communications skills. Consideration should be given to candidates who can demonstrate sufficient training or experience in establishing and maintaining sound public relations such that they would be able to perform successfully the duties of the particular position.

Similarly, some forester positions, particularly at the GS–9 and higher levels, require the

application of administrative or managerial skills in addition to those basic "subject matter" knowledges listed in paragraph 1A in the section covering "Basic Requirements for All Grades". These additional knowledges are required so that the forester may incorporate, for example, administrative, organizational and economic principles, practices, and requirements along with the basic "subject matter" components of forestry into the planning, programing, budgeting and related decision-making processes. For such positions, consideration should be given to candidates who can demonstrate experience or training in such areas as Forest Resources Economics, Finance, or Taxation; Forest Resources Policy and Law; Land Use Planning; Organizational Management Theory; Methods Analysis; Business or Public Administration, etc.

(In applying the criteria suggested in the preceding paragraphs, note the advisory comments on the use of selective factors contained in the section "Selective Placement".)

Attention should be given to the type, level, and to the extent measurable and relevant to the critical performance factors of the position to be filled, the progression in duties and responsibilities of the candidate and the recency of the experience.

4. Accomplishments.—Considered here are the candidate's demonstrated knowledge of forestry and related sciences, his/her professional interests as shown by self-development activities, his/her stature in the profession, and his/her accomplishments, *considering opportunities for such*. This factor applies primarily to research positions but may also apply to other positions.

Judgments by coworkers or colleagues are highly important in appraising scientific accomplishments. Evidence used to appraise accomplishments includes publications, participation in forestry and other professional societies, leadership activities in the field of endeavor, honorary awards and other recognition, contributions to forestry knowledge, and the like. Publications should be carefully appraised in terms of their total contribution to knowledge about the field, rather than judged by volume. Citations by others as an authority, however, may serve as a partial index of the value of published work. The extent of professional recognition may be judged by such things as invitations to present papers before professional groups (international, national, regional, local); use of publications as a resource by other foresters; and activities in professional societies.

Foresters, as they advance in level of responsibility, are expected to engage in continuing and vigorous professional development as a method of keeping abreast of the field. Lack of evidence of this development legitimately may be considered as detracting from the overall quality level assigned. Accomplishments should be appraised in consideration of *the opportunities afforded by past assignments* and the level of these assignments.

MEDICAL QUALIFICATION REQUIREMENTS

Applicants must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operations and Incidental Operators.

Forestry Aid, GS-1/3
Forestry Technician, GS-4/12

DESCRIPTION OF WORK

Forestry Aids and Technicians apply knowledge of forestry methods, techniques, and practices, and of land use. They assist professional foresters and perform technical work (a) in the management, conservation, development, utilization, and protection of forest resources, (b) in forestry research, (c) in cooperative forestry, or (d) in other forestry activities. They perform work in connection with such activities as the following:

—Administration of timber sales and of silvicultural practices; cruising, marking, scaling, appraising, and measurement of logs or trees; or other technical work supporting professional management of the timber resource, or research investigations of factors affecting it.

—Administration of recreation areas, wilderness areas, experimental forest operations; collection of data from experimental plots, barometer watersheds, or other forestry operations; taking measurements and installing, operating, and maintaining a variety of instruments and equipment; collecting and consolidating data; or other technical work supporting professional management of and research on forest resources such as recreation, range, soil and water, and wildlife.

—Planning and overseeing fire control activities; contacting the public to explain fire prevention laws, regulations, etc.; making fire prevention inspections; dispatching crews, vehicles, supplies, and equipment to suppress forest fires; enforcing laws, regulations, and policies involving visitor safety or resource protection; suppressing forest fires; or other technical work supporting professional management of forest resources and their protection from fire, insects and disease, or other depredations; and related research.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Experience Requirements

Candidates must have had experience as described below. (Appropriate education may be substituted for experience.)

Grade	*Length of experience*
GS-1	None.
GS-2	1 season or ½ year.
GS-3	2 seasons or 1 year.
GS-4	4 seasons or 2 years.
GS-5	3 years.
GS-6	4 years.
GS-7	5 years.
GS-8 and above	6 years.

Seasonal experience

A season of experience is considered to be a period of no less than three months, and no more than six months, of continuous employment on a seasonal basis. Shorter periods may be combined to make a season, provided a total of at least three months' experience is shown. For any period where the work exceeds six months, the excess work is credited toward an additional season of experience.

GS-1: No experience, training or education is required. Candidates must be interested in and willing to learn and perform forestry aid work and show evidence of likelihood of success in this work.

GS-2 and 3: Candidates must have experience in the amount specified that provided familiarity with general forest work operations, objectives, equipment, terminology, and safety practices, or which provided knowledges and skills

that would be helpful in developing skill in gathering information, carrying out forestry practices and procedures, and dealing with forest visitors. The experience should also demonstrate the ability to follow directions and to read, understand, and retain the variety of instructions, regulations, and procedures that are required in forestry technician work.

Such experience is most commonly gained in public or private forest or range operations, logging or sawmilling operations, fire control, farming, ranching, natural resources, or instructional work experience. The following are additional examples of qualifying experience for grades GS–2 and GS–3:

—Biological aid;
—Cartographic aid;
—Construction inspection aid;
—Engineering draftsman;
—Forest worker;
—Hydrologic aid;
—Irrigation systems operator;
—Job Corps experience in forestry, range or soil conservation projects;
—Landscaping aid or gardener;
—Physical science aid;
—Plant pest control aid;
—Soil conservation aid;
—Surveying aid;
—Operator of engineering equipment;
—Firefighter;
—Helper in the construction trades.

NOTE: Part-time experience may be credited toward the experience requirements, regardless of whether any compensation was received for the work, and regardless of whether it was in a civilian or military environment.

GS–4 and above: Experience must have involved technical work which provided the knowledges and skills needed for work in carrying out forestry practices and procedures including those required in the specialty field. The experience must have provided the candidates with knowledge of some of the pertinent principles, methods, and techniques of forestry, and a basic understanding of multiple land use.

At any grade level the total amount of the experience specified need not be solely in forestry work. However, the sum total of a candidate's experience must provide the knowledges, skills, and abilities (including knowledge of forestry principles and practices) applicable and required to perform work at the level of the forestry technician position to be filled. The experience must have included actual forest management, protection, development, or forestry research support work, or work similar to that performed to support or complement professional and scientific forestry.

The following are examples of qualifying experience:

—Forestry aid or technician experience;
—Engineering, range, or soil conservation technician experience which involved the application of cultural, resource conservation, or land management practices on nonforest or ranch lands and which, when combined with the required knowledge of forestry operations and equipment, provide the essential knowledge and skills needed for successful performance of the work;
—Farming or ranching experience which involved application of cultural and soil and water conservation practices, including safety and use of equipment and which provided a basic understanding of land use;
—Experience in forest or range fire control, prevention, or suppression.

Some positions may require specialized knowledge such as for timber scaling, forest survey support, fire suppression, special equipment operating, swimming (life-saving), skiing, use of saddle and pack horses, or research measurements. For such positions, candidates must show that their experience and training have given them the specific technical knowledges and skills needed to perform the duties of the position for which they are being considered.

GS–4: Six months of the required experience must have been comparable in difficulty and responsibility to the GS–3 grade level.

GS–5: At least one year of the required experience must have been comparable in difficulty and responsibility to the GS–4 grade level.

GS-6 through GS-11: At least one year of required experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or two years comparable to the second lower grade in the Federal service.

GS-12: At least one year of the required experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's total record of experience and education must demonstrate that he possesses the ability to perform the duties of the position.

ABILITY TO WORK WITH OTHERS

Many of these positions involve contact with the public to explain procedures and aspects of programs, in order to enlist the public's understanding, cooperation, and support of these aspects of agency operations. For such positions candidates must demonstrate that they have the required ability.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for Supervisory Positions in General Schedule Occupations, in part III of this handbook will also apply.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

GS-2: Graduation from a full 4-year or senior high school, or possession of a General Education Development High School Equivalency Certificate, may be substituted in full for the experience requirements at the GS-2 level. (High school education, or the General Education Development High School Equivalency Certificate, may not be substituted for any part of the experience requirements for GS-3 and above.)

GS-3: One academic year of post-high school education that included some course work in subjects such as forestry, agriculture, range management or conservation, wildlife management, engineering, biology, mathematics, or other natural or physical sciences may be substituted for one year of experience, and meets in full the requirements at the GS-3 level.

GS-4: Two years of post-high school academic study, which included at least 12 semester hours in any combination of subjects such as forestry, range management or conservation, wildlife management, watershed management, soil science, natural resources (except marine fisheries and oceanography), outdoor recreation management, civil or forest engineering, or wildland fire science may be substituted for two years of experience. This meets in full the experience requirements at the GS-4 level.

GS-5: Successful completion of (a) a full 4-year course in a college or university leading to a bachelor's degree with major study in forestry, range management, or a closely related subject-matter field, or (b) four years of post-high school academic study which included at least 24 semester hours in any combination of courses listed under GS-4 above may be substituted for three years of experience. This meets in full the experience requirements at the GS-5 level.

Appropriate education and training other than that outlined above, such as in manpower development programs or military training programs, will be granted credit on a month-for-month basis.

At any grade, post-high school education or training which is acceptable under these standards may be substituted for part of the required experience on a pro rata basis.

The maximum amount of experience for which education of any kind may be substituted is three years.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

Most candidates must either hold, or obtain within 30 days of employment, appropriate State and U.S. Government motor vehicle operators' permits.

BASIS OF RATING

Competitors for all positions will be rated on the quality and extent of experience, education, or training in relationship to the duties of the positions. No written test is required.

SELECTIVE PLACEMENT

For positions that require particular knowledges and skills, consideration may be restricted to those candidates whose background indicates that they possess the required knowledges and skills.

INSERVICE PLACEMENT ACTIONS

Credit for High School Education

For inservice placement actions, high school education may be credited in accordance with the "add-on rule," that is, the employee need show only that he has acquired the additional qualifications required for the new position. Thus, a high school graduate appointed at GS–2 needs six months of experience to qualify for a grade GS–3 position.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for aid positions at GS–2 and GS–3 should have the ability to use high school level mathematics, the ability to read and understand simple instructions and procedures, the ability to learn forestry aid duties, and the ability to work as a member of a team.

At the higher grade levels, forestry technicians need to know and be able to apply, or possess knowledges, skills, and abilities such as the following:

—Ability to read and interpret technical forestry plans;
—Knowledge and ability to use forestry practices, formulas, and measurement systems in the specialty field;
—Knowledge of and experienced judgment in selecting technical guidelines and reference materials, including precedents;
—Ability to prepare analytical reports;
—Knowledge of safety practices;
—Ability to meet, deal, and maintain courteous relations with technicians, foresters, local residents, public officials, user agency representatives, etc.;
—Ability to operate independently, often in dispersed locations, without immediate supervision.

Evaluation of Education and Experience

Evaluation of education and experience for both open-competitive and inservice placement actions logically includes the degree and scope of the candidate's knowledge, skills, and abilities, which can be used in performing duties of the position to be filled. Such knowledge and abilities may have been obtained on the job and in courses related to the work of the position, or both.

Typically, completion of two years of post-high school academic study, which included any combination of related courses, may be substituted for two years of experience and meets in full the experience requirements at the GS–4 level. However, some schools offer intensive forestry technology programs of less than two years duration. In some cases, these programs may provide the student with the knowledges and skills fully equivalent to those normally obtained during a more generalized two-year course of study. These programs should be evaluated on an individual basis. Only those programs which are substantially longer than the usual academic year of nine months, and provide concentrated academic course work in forestry as well as field experience should be considered as qualifying for GS–4.

In ranking individuals, detailed facts about the position requirements need to be determined. For a position which requires specialized knowledge and abilities, experience gained in the particular kind of work and in the same or a directly related field as the position to be filled normally should be ranked as highest quality. Experience in work which is similar to the duties of the position but in a less closely related occupation generally should be ranked at lower levels.

Methods of Evaluation

Useful procedures for evaluating candidates for technician positions are described in *FPM*

Supplement 335-1, Evaluation of Employees for Promotion and Internal Placement. Several procedures, including job element rating, are suggested in this material. One or more of them may be appropriate for the types of positions classified in this series.

PHYSICAL REQUIREMENTS

A. *For all except positions classed as extremely arduous and hazardous*

Candidates must be physically able to perform the duties of the position efficiently. Good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. The duties of most positions require the ability to distinguish either basic or shades of color; however, there may be a few positions which do not require that ability, and candidates with defective color vision will receive consideration. Ability to hear the conversational voice, with or without a hearing aid, is required. For most positions, candidates with an amputation of arm, hand, leg, or foot will not qualify for appointment; however, there may be a few positions suitable for persons with such handicaps. Candidates must possess emotional and mental stability. Any physical condition which would cause the candidate to be a hazard to himself or to others will disqualify for appointment.

Immunization: At time of appointment, appointees may be required to undergo tetanus immunization.

B. *For positions classed as extremely arduous and hazardous*

Any physical defect which would cause the candidate to be a hazard to himself or to others, or which would prevent efficient performance of the duties of the position, will disqualify for appointment. The incumbent may be subject to periodic examinations following appointment. If it is determined that a physical defect is present which causes the employee to be a hazard to himself or to others, or which prevents efficient performance of the duties of the position, his employment in the position may be terminated.

The duties of these positions require arduous physical exertion under rigorous and unusual conditions. Persons appointed will be subject to extreme physical danger and to irregular and protracted hours of work. Any structural or functional limitation or defect which tends to interfere materially with a high degree of physical activity will disqualify a candidate for appointment.

Girth of abdomen should not be greater than measurement of the chest at rest. No height or weight limitations are specified, but weight must be in proportion to height, as an indication of the stamina and vigor needed to sustain arduous work through extended or irregular periods or under unusual mental, physical, or psychological pressures.

Eyes: Distant vision, without glasses, must test at least 20/50, Snellen, in one eye and at least 20/100, Snellen, in the other. Near vision, glasses permitted, must be acute for reading without strain printed material the size of typewritten characters. Candidates must be able to read any 15 of the 20 plates (demonstration plates excluded), American Optical Co., Pseudoischromatic Test plates (1940 issue), or successfully pass the Edridge-Green lantern test. Candidates must be free from acute or chronic eye disease.

Ears: Candidates must be able to hear the normal spoken voice at 20 feet, each ear, and the whispered voice at 15 feet, each ear. Use of hearing aid is not permitted. Candidates must be free from acute or chronic disease of the external, middle, or internal ear.

Nose, mouth, and throat: Candidates must be free from conditions which interfere with distinct speech or with free breathing. Acute or chronic sinus disease or diseased tonsils must not be present.

Teeth: Candidates must be free from gross dental infection and Vincent's disease. They must have sufficient teeth, natural or prosthetic, to insure proper incision and mastication of food.

Lungs: The following conditions are causes for rejection of a candidate: A history of pulmonary tuberculosis with other than minimal involvement and arrested or healed for a period of less than five years; or other acute or chronic disease of the lungs.

Heart and blood vessels: The following conditions are causes for rejection of a candidate for appointment: Organic heart disease, compensated or not; valvular diseases; murmurs which are not cardiorespiratory in origin; coronary heart diseases; cardiac enlargement; angina pectoris; a persistent pulse rate at rest which exceeds 110 or is less than 50; cardiac arrhythmia or irregularity other than sinus arrhythmia; arteriosclerosis; or a blood pressure reading which exceeds 150, systolic, or 90, diastolic, or which is less than 100, systolic, or 60, diastolic. If the initial blood pressure reading exceeds 150, systolic, or 90, diastolic, serial blood pressure readings will be taken and the average thus obtained will be the value to be considered.

Abdomen: The following conditions are causes for rejection of a candidate for appointment: Acute or chronic diseases of the abdominal viscera; a history of gastric or duodenal ulcer; significant enlargement of the liver or spleen. Hernia, any type, will be cause for suspension from the register until medical evidence is furnished showing the condition to have been remedied.

Genitourinary: A macroscopic and microscopic examination of the urine will be made at the time of examination. The following conditions will disqualify a candidate for appointment: Acute or chronic genitourinary diseases; diabetes; acute or chronic prostatitis; large or painful varicocele or hydrocele with functional impairment. If there is a history of a venereal infection, satisfactory evidence of adequate treatment must be furnished.

Spine, pelvis, sacroiliac, and lumbosacral joints: Candidates must have free mobility of spine and pelvic joints. The following conditions will disqualify a candidate for appointment: Any significant curvature of the spine, deformity or malformation of the parts; a history of herniated nucleus pulposus with or without surgery; or spondylolisthesis.

Extremities: The following conditions will disqualify a candidate for appointment: Anomalies in the number, form, proportion, and movements of the extremities which produce significant deformity or which interfere with function. These conditions include un-united fractures and nonreducible dislocations with incomplete restoration of function; amputation of arm, hand, leg, or foot; loss of any portion of the thumb of either hand; loss of more than the distal phalanx of index or middle fingers of either hand; loss of more than the two distal phalanges of the ring or little fingers of either hand; ankylosed joints; varicose veins other than mild in degree; pes cavus; flatfoot with symptoms; weakfoot; clubfoot; loss or deformity of great toe or any two on the same foot or any condition which interferes with function or will prevent efficient performance of duty.

Nervous system: Candidate must be free from emotional instability and have no history of psychosis. The following conditions will disqualify a candidate for appointment: Epilepsy; chronic alcoholism or drug addiction; paralysis or paresis; or muscular atrophies or dystrophies.

Skin: The following conditions will disqualify a candidate for appointment: Psoriasis or epitheliosis if more than of slight degree; extensive scarring which interferes with function; or chronic skin disease resistant to treatment.

Other defects: Any serious deviation from sound physical condition will be ground for rejection of a candidate regardless of whether or not the condition is named above. Remediable defects or curable diseases will not exclude a person from examination but proof that such defects have been remedied or the disease cured must be received during the life of the eligible register before persons otherwise qualified may be considered for appointment under civil service rules.

FORESTRY TECHNICIAN SERIES (SMOKEJUMPER)

Forestry Technician (Smokejumper) GS-5/7

DESCRIPTION OF WORK

Forestry Technicians (Smokejumpers) make parachute jumps into forested and mountainous terrain, and other areas, to suppress fires that must be brought under control before ground crews can reach the fire area. Because smokejumper work is, by its nature, seasonal, employment in most of the positions will be for a period of three to four months each year.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Experience Requirements

Candidates must have had experience as described below. (Education may be substituted for general experience.)

Grade	*General experience (seasons)*	*Fire suppression work (seasons)*	*Smokejumping fire control work (seasons)*
GS-5	1	1	None
GS-6	1	1	1
GS-7	1	1	2

General experience: This experience may have been gained in the field of forestry or in related fields such as range management, farming, ranching, fire control work, or in soil and water conservation activities, provided the work has furnished the candidate some of the basic knowledges required to perform fire control work.

Fire suppression work: This is experience as a member of an organized fire suppression crew, or comparable unit, in forest and range fire suppression work under mountainous terrain conditions such as those in the Western United States. This must have included training in forest or range fire suppression methods and techniques and in safety and first aid practices common to firefighting work.

Smokejumping fire control work: This experience must have included (1) advanced training in forest and range fire suppression, fire behavior, and safety and first aid; (2) parachute jump training equivalent to that received by smokejumpers in Federal agencies; and (3) performance of actual jumps and firefighting under actual conditions.

Seasonal experience: A season of experience is considered to be a fire season of no less than three months and no more than six months. Shorter periods may be combined to make a three months' total. For any period which exceeds six months, the excess is credited toward an additional season of experience.

Quality of Experience

For eligibility at GS-6 and GS-7, at least one season of smokejumping fire control work must have been comparable in difficulty and responsibility to the next lower grade in the Federal service.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements as follows: One academic year of post-high school education in an accredited resident institution that included or was supplemented by at least 12 semester hours in any combination of courses such as: Forestry, conservation, range management, wildlife management, agriculture, engineering, or one of the related physical or natural sciences, may be substituted for one season of *general* experience.

Appropriate education and training other than that outlined above, such as in manpower development programs, may be granted credit depending upon its applicability and extent.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for Supervisory Positions in General Schedule Occupations, in part III of this handbook will also apply.

BASIS OF RATING

Competitors for all positions will be rated on the quality and extent of experience, education, or training in relationship to the duties of the position. No written test is required.

PHYSICAL REQUIREMENTS

Any physical defect which would cause the candidate to be a hazard to himself or to others, or which would prevent efficient performance of the duties of the position, will disqualify for appointment. The incumbent may be subject to periodic examinations following appointment. If it is determined that a physical defect is present which causes the employee to be a hazard to himself or to others, or which prevents efficient performance of the duties of the position, the person's employment in the position may be terminated.

The duties of these positions require arduous physical exertion under rigorous and unusual conditions. Persons appointed will be subject to extreme physical danger and to irregular and protracted hours of work. Any structural or functional limitation or defect which tends to interfere materially with a high degree of physical activity will disqualify a candidate for appointment.

Height: A minimum height of 65 inches is required and the maximum height acceptable is 75 inches.

Weight: Maximum, GS-5, 190 pounds; GS-6 and higher grades, 200 pounds.

At time of appointment candidates must weigh at least 130 pounds, without clothes. Girth of abdomen should not be greater than measurement of chest at rest.

Eyes: Distant vision, without glasses, must test at least 20/40, Snellen, in one eye and at least 20/70, Snellen, in the other. Near vision, glasses permitted, must be acute for reading without strain printed material the size of typewritten characters. Candidates must be able to read any 15 of the 20 plates (demonstration plates excluded), American Optical Co., Pseudoisochromatic Test plates (1940 issue), or successfully pass the Edridge-Green lantern test. Candidates must be free from acute or chronic eye disease.

Ears: Candidates must be able to hear the normal spoken voice at 20 feet, each ear, and the whispered voice at 15 feet, each ear. Use of hearing aid is not permitted. Candidates must be free from acute or chronic disease of the external, middle, or internal ear.

Nose, mouth, and throat: Candidates must be free from conditions which interfere with distinct speech or with free breathing. Acute or chronic sinus disease or diseased tonsils must not be present.

Teeth: Candidates must be free from gross dental infection and Vincent's disease. They must have sufficient teeth, natural or prosthetic, to insure proper incision and mastication of food.

Lungs: The following conditions are causes for rejection of a candidate: A history of pulmonary tuberculosis with other than minimal involvement and arrested or healed for a period of less than five years; or other acute or chronic disease of the lungs.

Heart and blood vessels: The following conditions are causes for rejection of a candidate for appointment: Organic heart disease, compensated or not; valvular diseases; murmurs which are not cardiorespiratory in origin; coronary heart diseases; cardiac enlargement; angina pectoris; a persistent pulse rate at rest which exceeds 110 or is less than 50; cardiac arrhythmia or irregularity other than sinus arrhythmia; arteriosclerosis; or a blood pressure reading which exceeds 150, systolic, or 90, diastolic, or which is less than 100, systolic, or 60, diastolic. If the initial blood pressure reading exceeds 150, systolic, or 90, diastolic, serial blood pressure readings will be taken and the average thus obtained will be the value to be considered.

Abdomen: The following conditions are causes for rejection of a candidate for appointment: Acute or chronic diseases of the abdominal viscera; a history of gastric or duodenal ulcer; significant enlargement of the liver or spleen. Hernia, any type, will be cause for suspension from the register until medical evidence is furnished showing the condition to have been remedied.

Genitourinary: A macroscopic and microscopic examination of the urine will be made at the time of examination. The following con-

ditions will disqualify a candidate for appointment: Acute or chronic genitourinary diseases; diabetes; acute or chronic prostatitis; large or painful varicocele or hydrocele with functional impairment. If there is a history of a venereal infection, satisfactory evidence of adequate treatment must be furnished.

Spine, pelvis, sacroiliac, and lumbosacral joints: Candidates must have free mobility of spine and pelvic joints. The following conditions will disqualify a candidate for appointment: Any significant curvature of the spine, deformity or malformation of the parts; a history of herniated nucleus pulposus with or without surgery; or spondylelisthesis.

Extremities: The following conditions will disqualify a candidate for appointment: Anomalies in the number, form, proportion, and movements of the extremities which produce significant deformity or which interfere with function. These conditions include un-united fractures and nonreducible dislocations or united fractures and reduced dislocations with incomplete restoration of function; amputation of arm, hand, leg, or foot; loss of any portion of the thumb of either hand; loss of more than the distal phalanx of index or middle fingers of either hand; loss of more than the two distal phalanges of the ring or little fingers of either hand; ankylosed joints, varicose veins other than mild in degree; pes cavus; flatfoot with symptoms; weakfoot; clubfoot; loss or deformity of great toe or any two on the same foot or any condition which interferes with function or will prevent efficient performance of duty.

Nervous system: Candidate must be free from emotional instability and have no history of psychosis. The following conditions will disqualify a candidate for appointment: Epilepsy; chronic alcoholism or drug addiction; paralysis or paresis; or muscular atrophies or dystrophies.

Skin: The following conditions will disqualify a candidate for appointment: Psoriasis or epitheliosis if more than of slight degree; extensive scarring which interferes with function; or chronic skin disease resistant to treatment.

Other defects: Any serious deviation from sound physical condition will be ground for rejection of a candidate regardless of whether or not the condition is named above. Remediable defects or curable diseases will not exclude a person from examination, but proof that such defects have been remedied or the disease cured must be received during the life of the eligible register before persons otherwise qualified may be considered for appointment under civil service rules.

Immunization: At time of appointment, appointees may be required to undergo tetanus immunization.

→*Physical fitness:* Smokejumpers must successfully complete physical fitness tests of their cardiorespiratory endurance and muscular fitness before making the first training jump.←

SOIL SCIENCE SERIES[1]

Soil Scientist GS–5/15

DUTIES STATEMENT

Soil scientists perform professional and scientific work such as the following:

—Conduct investigations of soils from the standpoint of their genesis, morphology, character, and classification; map soil boundaries; interpret their behavioral traits for different types of management and use.

—Analyze the chemical and physical properties of various soils and relate the properties to management, utilization, and productivity in the laboratory.

—Perform research on chemical, physical, and biological properties of soils by laboratory, greenhouse, growth chamber, and field plot studies to develop soil and water management and conservation practices.

—Investigate soil-water-vegetation relationships in watersheds.

—Classify or reclassify land on the basis of utility, economic feasibility, and productivity for irrigation farming by integrating field and laboratory data to develop land classes; record findings on maps; prepare narrative reports of findings.

BASIC REQUIREMENTS FOR GRADES GS–5/15

Either A or B is required:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in soil science, or a related field of biological, physical, or earth science. The study must have included at least 30 semester hours of courses in biological, physical, and earth sciences, including at least 15 semester hours in soils.

B. A total of at least 30 semester hours in the biological, physical, and earth sciences, including 15 semester hours in soils; plus sufficient additional education or experience to total 4 years of education or 4 years of combined education and experience. The quality of such additional education or experience must have been sufficient to give the candidate professional and scientific knowledge equivalent to that normally acquired through the successful completion of a full 4-year course of study as described in A above.

In combining education with experience, an academic year of study which comprises 30 semester hours or 45 quarter hours will be considered equivalent to 9 months of experience.

Applicants for positions in basic or applied research and comparable highly technical and scientific functional areas of soils work must meet the requirements described in A above.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in or directly related to soil science and must have equipped the candidate with the knowledges and skills to perform fully the work of the position for which he is being considered.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are qualifying for grades GS–7 and above:

Grade	Minimum amount of professional experience in appropriate subject-matter fields (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the fol-

[1] This standard supersedes the standard for this series which was issued in December 1966.

lowing amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are typically and preferably acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are typically and preferably acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

CREATIVE RESEARCH

Except for candidates who qualify for a particular grade on the basis of meeting the graduate education requirements, candidates who have made a *creative research contribution* to the field of soil science may be rated eligible for the next higher grade than that for which they qualify under standard education and experience requirements.

Such research must have been on a hitherto unsolved problem or problems. It must have been creative in that it produced a basic principle, concept, method, approach, or technique that not only solves the specific problem at hand, but also is directly applicable in the solution of other problems, and may open a new area of research.

SUPERVISORY POSITIONS

For supervisory positions, see the qualfication standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for

Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

BASIS OF RATING

No written test is required. Candidates will be rated on the basis of their experience, education, and training. Ratings will be based on statements in the application form and any additional evidence received by the Commission.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

Most candidates must either hold, or obtain within 30 days of employment, appropriate State and U.S. Government motor vehicle operators' permits.

GUIDE FOR EVALUATION OF CANDIDATES

Evaluation of education

Courses in physics, chemistry, geology, hydrology, botany, plant physiology, plant taxonomy, plant ecology, climatology or meteorology, microbiology, invertebrate zoology, bacteriology, algology, mycology, entomology, agronomy, horticulture, forestry, conservation, soils or soil science, and similar subjects may be used to meet the 30 semester hour requirement in the biological, physical, or earth sciences.

Courses in soils, pedology, soil genesis, soil morphology, soil classification, soil surveying and mapping, soil chemistry, soil physics, soil microbiology, soil management, soil fertilization, soil productivity, and soil conservation are qualifying as course work in soils.

Courses in related fields of science, such as geology, hydrology, chemistry, physics, microbiology, agronomy, climatology, and vegetative influences may also be qualifying, *provided* the work dealt directly with soils problems, soils relationships, the principles that underlie soil science, or the methodology, procedures, and techniques applied in soils work. In evaluating this course work, particular attention should be paid to agronomy courses that are concerned with management practices and the use and productivity of the soils. Some of these courses are as applicable to soils work as to agronomy and can be considered to be soils courses on that basis.

Courses of additional value in preparing the candidate for soil science work are in: Photogrammetry, aerial photography interpretation, glaciology, statistics, urban planning, landscape architecture, outdoor recreation planning, economics, data processing, civil engineering, organic chemistry, physical chemistry, optical mineralogy. X-ray mineralogy is especially valuable in research positions.

The well-rounded soil science graduate will have course work in these broad areas: Soils, chemistry, physics, mathematics, plant science, biology, geology, climatology, and communications (technical writing, speech, English).

Some of the less obviously related types of courses become important at the higher levels of the occupation when the soil scientist begins to develop interpretational guides and ratings for various types of land use and deals with other professionals and specialists who have need for soils information. Also, if the soil scientist is to progress to the upper echelons of staff and research work, broad preparation will enhance his opportunities and make him more effective.

The nature and quality of graduate education is especially important in evaluating candidates for research positions. The research positions may involve research in the field and in the laboratory. It may be basic or applied and for the purpose of discovering and interpreting facts related to the increased productivity, effective management, and proper use of soils.

Candidates for research positions must show originality and resourcefulness in the development of untried methods and recognizing new avenues of investigation. Also, they must be adept at analysis and interpretation of data and preparing scientific reports and manuscripts.

Evaluation of experience

Biological, earth, and physical science work which gave the candidate a thorough understanding of the scientific principles which underlie soil science work and how the principles

are applied in soil management, conservation, and use is qualifying. In some instances, it may have been acquired in one or more of several occupational areas, such as agronomy, geology, forestry, and soil conservation. This does not mean that all work in such fields is qualifying. Careful examination will be required in order to determine the relevance of work in these fields.

Experience which has comprised many soil science related duties involving the use of knowledge from a number of other fields and related sciences is generally the more valuable because of its broadness. For positions involving work in only one of the functional areas consideration should also be given as appropriate to the depth and intensity of experience in that function.

Scientific accomplishments.—Considered here are the candidate's demonstrated knowledge of soil science and related fields, his scientific interest as shown by self-development activities, his stature in the profession, and his accomplishments (considering opportunities for such). Evidence used to appraise accomplishments includes publications, participation in professional societies, leadership activities in the field of endeavor, honorary and other recognition, contributions to knowledge, and the like. Publications should be carefully appraised in terms of their total contribution to knowledge about the field, rather than judged by volume. Citations by others as an authority, however, may serve as a partial index of the value of published work. The extent of professional recognition may be judged by such things as invitations to present papers before professional groups (international, national, regional, local); activities in professional societies; use as a resource by other scientists; and the like.

Soil scientists, as they advance in level of responsibility, are expected to show signs of vigorous professional development as a method of keeping abreast of the field. Lack of evidence of this development legitimately may be considered as detracting from the overall quality level assigned.

Knowledges and abilities

Some of the primary factors to consider in ranking candidates for soil science positions are discussed below. The factors are categorized more or less according to the levels at which they are most significant.

All levels

Ability to use aerial photographs;
Knowledge of field procedures, tools, and instruments;
Knowledge of appropriate laboratory tests and procedures;
Ability to evaluate data and translate it into meaningful tools for land management and land use in technical and lay terms;
Ability to work cooperatively as a team member.

Candidates for lower level positions (GS-5 and GS-7) should be ranked primarily on the basis of education which has provided them with the required fundamental knowledges of the biological, physical, and earth sciences for lower level soil science work, as discussed in the *Evaluation of Education* portion of this Guide.

Candidates for higher level positions must meet the education requirements specified for lower level positions, but in addition should be ranked on the basis of supplemental education and experience which have provided them with knowledges and abilities such as the following:

Ability to lead a team effort and coordinate;
Originality, perspicacity, and resourcefulness;
Ability to plan and schedule work effectively in order to meet deadlines;
Ability to prepare written analyses, reports, and manuscripts;
Ability to adapt and develop new procedures;
Ability to develop and validate hypotheses by scientific means (research positions);
Decision-making ability;
Ability to work independently;
Experience in field work in a variety of geo-

graphic areas where the geology, climates, vegetation, cultural practices, land use practices vary;

Ability to meet and deal with the public and State and local government representatives.

In evaluating candidates for entry placements, appraisals from college instructors will be valuable in assessing many of the qualities listed above. For inservice placements, objective appraisals of supervisors, peers, and others who have had occasion to work closely with candidates or review their work will be important.

Methods of evaluation

FPM Supplement 335-1, Evaluation of Employees for Promotion and Internal Placement, describes methods of value in appraising employees' qualifications.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, most positions require the ability to distinguish either basic or shades of colors. Applicants must also possess emotional and mental stability.

Agronomist GS-5/7

Conservation Agronomist GS-9/15

Management Agronomist GS-9/15

Research Agronomist GS-9/15

DESCRIPTION OF WORK

Agronomists perform professional and scientific work concerned with the application of the fundamental principles of the plant, soil, and related biological, natural, and physical sciences (including those dealing with the water relationships involved) to the improvement, production, management, and utilization of field crops, pasture and cover crops, turf, and related types of vegetation; to soil and crop management; to the development and use of weed controls and plant regulators; and to work of an agronomic nature in related fields. This work is largely concerned with such crops and plants as the cereal and grain crops, legumes, grasses, forbs, tobacco, cotton and other fiber crops, sugar plants, and plants used for drugs and special purposes. Some positions require the application of a professional knowledge of agronomy to conservation and management problems, such as those concerned with the managing of land areas or the carrying out of coordinated soil and water conservation programs. Other positions are of a research or similarly complex nature, where the work emphasizes some phase of crop development and production or a particular subject-matter area of agronomy, such as soil and crop management, pasture or cover crop establishment and maintenance, or the control of noxious plants.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements

Applicants for these positions must have successfully completed one of the following requirements:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in agronomy or a closely related discipline or field of science. This course of study must have included at least 30 semester hours of course-work in the basic plant sciences, with a minimum of 15 semester hours in agronomic subjects, such as those dealing with plant breeding, crop production, and soil and crop management. The quality of this course-work must have been such that it would serve as a prerequisite for more advanced academic study in the field of science to which it pertains.

B. A total of at least 30 semester hours in the basic plant sciences, including a minimum of 15 semester hours in agronomic subjects, as described in A above, plus a sufficient amount of additional experience or education to total 4 years of education and experience or 4 years of education. The nature and quality of this additional experience or education must have been such that, when combined with the prescribed 30 semester hours in the basic plant sciences, it would give the applicant a professional and scientific knowledge of agronomy equivalent to that normally gained by successfully completing the full 4-year course of study requirements prescribed in A above.

Applicants for positions in research, development, and comparable highly technical and scientific functional areas of agronomic work must meet the requirements prescribed in A above.

Qualifying course-work in basic plant science and agronomy

Agronomy is a broad occupational area of the plant sciences and a major field of the agricultural sciences. It is concerned with the development, improvement, management, production, and utilization of field crops, with the analysis and interpretation of the biological, natural, and physical factors that affect soil management and crop production, with the development and use of agents that inhibit or enhance the growth of plants, and with the application of a knowledge of agronomy in the management of land. The work requires a sound knowledge of the plant sciences, e.g., botany, genetics, plant taxonomy, plant physiology, plant pathology, and agronomy, a good knowledge of soils and the scientific principles that

apply to soil-water-plant relationships; and a specific knowledge of the scientific principles, methods, and procedures that are applied in the field of agronomy, and in the production, management, and utilization of field crops. A scientist trained in such fields as plant physiology, plant breeding or genetics, plant pathology, range science, plant ecology, or soils, biochemistry, or biophysics may contribute substantially to an agronomic research program. This standard has been designed with this in mind and should be interpreted accordingly.

Course-work in such subjects as botany, plant taxonomy, plant physiology, plant breeding or genetics, plant ecology, plant pathology, microbiology, agronomy, or those dealing with basic soil-water-plant relationships of an agronomic or ecologic nature may be used to meet the 30 semester hour requirement in the basic plant sciences.

Course-work in agronomy includes courses in agronomy, field crops, field crop production or management, soil and crop management, plant breeding and development, weed control, and similar courses, including those in soils, biochemistry, plant physiology, etc., provided they dealt with principles, methods, or procedures that are applied directly in agronomic work and in the solving of agronomic problems.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, agronomy.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS-11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature.

b. The knowledges required for the work are *typically and preferably* acquired through graduate study.

c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-11 level after a short orientation period.

GS-12 Research positions. Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria:

a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature.

b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level.

c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS-7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS-9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

QUALIFYING FIELDS OF GRADUATE STUDY

To be qualifying, graduate study must have been in agronomy, or in one of the related disciplines or fields of science, such as plant physiology, soils, or genetics, where the curriculum or pattern of training placed major emphasis on field crops or agronomy.

Graduate study in related fields, such as botany, plant pathology, and biochemistry may also be qualifying, *provided* it placed a sufficient amount of emphasis on agronomy.

CREATIVE OR OUTSTANDING RESEARCH

Applicants who furnish positive evidence that they have performed highly creative or outstanding research, that either has led or can lead to major advances in a specific area of research, to a major advance in the discipline or field of science involved, or to major advances in science in general, may be rated on this basis for *highly demanding research positions* requiring similar abilities. Under these circumstances, the applicant can be rated eligible for the next higher grade above that for which he would normally be rated, *provided* he has not been rated eligible at this grade on the basis of meeting one of the graduate study requirements.

To receive this rating, the work must have been creative in the sense that it developed a basic principle, product, concept, method, approach, or technique, or provided a body of basic information that opened the way for major advances in the discipline or field of science involved, or to advances in science in general, by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of science in a major area.

ABILITY TO WORK WITH OTHERS

The duties of most of the *Conservation Agronomist* positions require a knowledge of farm, livestock, and ranch management as it pertains to agronomy, and also require that the

incumbent be able to work satisfactorily and effectively with farmers, livestock growers, and ranchers, and with other people who may be involved in the operations of a soil and water conservation program, both on an individual and a group basis. Therefore, applicants for *Conservation Agronomist* positions must show that they can give sound technical advice and guidance on the agronomic phases of farm, livestock, or ranch operations, and that they have the personal traits and sound judgment necessary to meet and deal effectively with individuals and groups, and with other people who are concerned with farm, livestock, or ranch operations.

Applicants for *Management Agronomist* positions must show that they have the personal traits and the sound judgment needed to meet and deal with individuals, groups, and the general public on matters pertaining to the agronomic and related uses of land.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

QUALIFICATIONS INQUIRIES

For all grades of these positions, confidential inquiries, including contacts with the applicants' supervisors and associates, or with other persons familiar with their qualifications, may be made to obtain further information about their technical, professional, and personal qualifications, and about their character and suitability for these positions.

SELECTIVITY IN PLACEMENT

A varying amount of selectivity is required to fill the more specialized positions in this series, and the paramount requirements for these positions may be related to the applicant's ability to perform the particular kind of highly specialized work involved, or to his ability to perform work in related occupational areas of science, where the work applies directly to the subject-matter field of agronomy that is involved.

For example, agronomists are usually broadly trained in the plant sciences and in agronomy, and assignments are made accordingly to most positions at the GS–5 and GS–7 grades. At the GS–9 and higher grades, the work tends to become more specialized, and may require training and experience in such subject-matter areas of agronomy as those dealing with soil and crop management, pasture and cover crop management, plant breeding or development, crop production, weed control, or specific kinds of crops (cotton and fiber crops, maize, cereal crops, root crops, pasture crops, etc.).

Any such positions should be filled on the basis of the job demands, and only those applicants whose total background of education, training, and experience shows that they possess the knowledges, abilities, and skills needed to meet these job demands will be considered eligible for such positions.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, most positions require the ability to distinguish either basic or shades of colors. Applicants must also possess emotional and mental stability.

* * * * *

INSTRUCTIONS ON RATING SPECIAL TYPES OF EDUCATION, TRAINING, AND EXPERIENCE

The following rules apply to the rating of special types of education, training, and experience for positions in this series:

1. Persons who have successfully completed all of the academic requirements for a bach-

elor's or higher degree in agronomy, or who show they have completed a graduate minor in agronomy, are considered to be qualified under the terms of the minimum educational requirements prescribed for positions in this series.

2. In filling *Conservation Agronomist* positions, experience as a *Soil Conservationist* is considered to be qualifying experience, *provided* it meets the following criteria:

a. The applicant meets the educational requirements prescribed for agronomist positions; *and*

b. Shows that a substantial portion of the work performed as a *Soil Conservationist* involved the application of sound agronomic practices in the carrying out of coordinated soil and water conservation programs.

Where it is shown that the agronomic phases of the soil conservation program are heavy, or play an important role in the success of the program, this type of experience can be considered qualifying for either *Conservation Agronomist* positions or *Management Agronomist* positions. Under some conditions, this experience may also meet the specialized research requirements for *Research Agronomist* positions, and should be evaluated carefully with this in mind, particularly where the duties of the position being filled require the application of a knowledge of soil and crop management, pasture or cover crop management, erosion control practices, etc.

3. Under some circumstances, experience as a *Research Chemist*, *Plant Physiologist*, *Plant Pathologist*, *Soil Scientist*, or experience in a similarly related and directly applicable discipline or field of science may provide a valuable means of acquiring the type of scientific training a *Research Agronomist* needs to perform related types of agronomic work. Such training should always be appraised carefully in relation to the specific requirements of the type of *Research Agronomist* position for which the applicant is being considered. Where this type of experience is found to be qualifying, credit may be given for either general research experience or specialized research experience, depending upon the nature of the experience and the job demands of the research position.

This kind of determination ordinarily will only apply to *Research Agronomist* positions at the GS–11 and higher grades. However, for some kinds of work, e.g., research on weed control, soil and crop management, pasture and cover crop establishment and management, erosion control, and soil and water relationship work, it may apply at all grades.

AGRICULTURAL MANAGEMENT SERIES

Agricultural Management Specialist GS–5/15

DESCRIPTION OF WORK

Employees perform professional agricultural work in management of agricultural operations, and supervise credit and technical assistance programs for rural people and communities.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements

Applicants must have successfully completed A or B below:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in farm, livestock, or ranch management; agricultural economics; agricultural education; agronomy; animal, dairy, or poultry husbandry; agricultural engineering; general agriculture; horticulture; or other closely related fields of agriculture.

B. A total of at least 30 semester hours of course work in one or more of the agricultural fields listed in paragraph A above, plus sufficient additional education or experience of an appropriate nature to total 4 years of education or 4 years of education and experience. The quality of this additional education or experience must have been such that, when combined with the required 30 semester hours of course work, it gives the applicant a professional knowledge of agriculture comparable to that normally acquired through the successful completion of the full 4-year course of study described above in paragraph A.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, agriculture.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types

described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

GUIDE FOR EVALUATING TRAINING AND EXPERIENCE

Positions in the Agricultural Management Series require application of broad knowledges and skills, covering the production, financing, and marketing phases of agriculture. For most positions, training and experience that have developed knowledges in a number of functional or specialty areas are more valuable than a background concentrated in a specialized function or subject-matter area.

General educational background

Education that has included courses in a number of areas—some related to agriculture, others in different fields—indicates that a candidate is prepared to carry out his duties with more than minimal success. Of particular value are courses in general economics, agricultural business management, credit and finance practices, natural resources development and management, rural economics and sociology, communications skills (speaking, writing), and psychology.

Nature, recency, and progressiveness of experience

All other things being equal, the best experience is that which shows progression in duties and responsibilities at least to a level demonstrating the candidate's ability to perform successfully at the level for which he is being considered. Stale experience or experience that has not progressed steadily in difficulty and responsibility can be considered as of lesser value.

Relevance of training and experience to specific requirements of positions

There are differences in emphasis or orientation among positions in the Agricultural Management Series that make it desirable to identify the specific skills appropriate to a position, or group of positions, and to evaluate candidates with respect thereto.

For example, working with individual farmers to plan the development and operation of their farms requires a high degree of skill in personal communication and leadership, as well as a thorough understanding of the prevailing agricultural practices and economy. In filling positions with such responsibility, emphasis should be placed upon experience or academic activities that demonstrated the use of communication and leadership skills. For instance, experience in agricultural extension work, or in teaching vocational agriculture and guiding demonstration projects on farms, or ranches, would likely indicate possession of these skills.

Some positions in the Agricultural Management Series are concerned with programs aimed at strengthening and developing the agricultural economy in a geographic area. These positions require thorough understanding of agricultural production and business, and considerable organizational and leadership skills. Such knowledge and skills would be demonstrated in experience, for example, in organizing and managing a large-scale activity for marketing of agricultural commodities, where thorough knowledge of the production and processing of the commodities was applied.

A few positions may be concerned with specialized systems of farming, e.g., irrigation. For these, it is appropriate to require that candidates have training and/or experience in the appropriate area of specialization.

QUALIFICATION INQUIRIES

For all grades of these positions, confidential inquiries, including contacts with the candidates' supervisors, and associates, or other persons familiar with their qualifications, may be made to obtain further information about their technical, professional, and personal qualifications and their character and suitability for these positions.

BASIS OF RATING

No written test is required. Candidates will be rated on the basis of education, training, experience, and personal qualifications in relation to the requirements of the specific positions to be filled. Ratings will be based on information furnished in application forms and any additional information that may be obtained from confidential inquiries to supervisors, associates, and other references.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, candidates must possess mental and emotional stability.

Fishery Biologist (General) GS-5/15

Fishery Biologist (Management) GS-9/15

Fishery Biologist (Research) GS-9/15

DESCRIPTION OF WORK

Fishery Biologists perform professional and scientific biological work in connection with the determination, establishment and application of the biological facts, principles and procedures necessary for the conservation and management of fishes and other aquatic organisms, such as crustaceans and molluscs. The work may involve (1) study of life history, habits, classification and economic relations of aquatic organisms, including fish, particularly those important to recreation and industry; (2) management of various fisheries or fisheries resources, or the administration and management of Federal programs, or other phases of fishery management; or (3) research work which may involve the quantitative determination of interrelations between species of fish, the effect of environmental and man-made changes of the environment on survival and growth of fish and fishing success, the determination of the rearing and planting methods best adapted for maximum success in hatchery operations, or devising methods to regulate fishing to secure a sustained maximum yield.

BASIC REQUIREMENTS FOR ALL GRADES

For all grades of *nonresearch positions*, applicants must have successfully completed one of the following:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with at least 30 semester hours of course-work in biological science. This course-work must have included:

— At least 6 semester hours in aquatic subjects such as limnology, ichthyology, fishery biology, aquatic botany, aquatic fauna, oceanography, fish culture or similar course-work of equivalent basic values in the field of fishery biology; and

— At least 12 semester hours in the animal sciences in such subjects as general zoology, vertebrate zoology, comparative anatomy, physiology, entomology, parasitology, ecology, cellular biology, genetics or research in these fields. (Excess course-work in aquatic subjects may be used to meet this requirement when appropriate.)

B. Course-work in an accredited college or university which has included at least 30 semester hours in biological science with a minimum of 6 semester hours in aquatic subjects and 12 semester hours in the animal sciences, as described above in paragraph A, *plus* additional appropriate experience or education which when combined with the 30 semester hours will total 4 years of education or 4 years of education and experience. The quality of the applicant's total background must be such that it gives him a professional and technical knowledge comparable to that normally acquired through the successful completion of the full 4-year course of study described above in paragraph A.

Applicants for *research positions* must show that they have completed a full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in biology, zoology or biological oceanography, which has included at least 30 semester hours of course-work in biological and aquatic science and 15 hours of course-work in the physical and mathematical sciences. This course-work must have included:

— At least 15 semester hours of preparatory training in zoology beyond the introductory courses in biology or zoology in such courses as invertebrate zoology, comparative anatomy, histology, physiology, embryology, advanced vertebrate zoology, genetics, entomology and parasitology; *and*

— At least 6 semester hours of training applicable to fishery biology in such subjects as fishery biology, ichthyology, limnology,

oceanography, algology, planktonology, marine or fresh water ecology, invertebrate ecology, principles of fishery population dynamics, or similar course-work of equivalent basic values in the field of fishery biology; *and*

— At least 15 semester hours of training in any combination of two or more of the following: chemistry, physics, mathematics, or statistics.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, fishery biology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS-11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-11 level after a short orientation period.
GS-12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature.

b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level.

c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS-7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS-9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

ABILITY TO COOPERATE AND WORK WITH OTHER PEOPLE

Applicants for positions at the GS-7 and higher grades, where the duties of the position involve a considerable amount of cooperative work, must show that they have the ability to establish sound effective working relations with others, including the general public.

Applicants for positions at the GS-11 and higher grades, where the duties of the positions involve a substantial amount of public contact work, and the handling of difficult, controversial and complex situations requiring a considerable amount of negotiation, must also show that they have the ability to handle difficult and controversial issues, and that they can negotiate such matters effectively.

PILOT EXPERIENCE

Some of these positions, especially those involving work in the far North, may also involve pilot duties. For all positions requiring the incumbent to pilot an aircraft, applicants must:

1. Possess a current FAA Commercial Pilot's Certificate with appropriate ratings for single-engine aircraft operation on both land and water.

2. Have a minimum of 500 hours' solo flight time in command of aircraft, not less than 100 hours of which shall be in cross-country time.

SWIMMING ABILITY

Certain field positions may require the ability to swim.

QUALIFICATION INQUIRIES

For all grades of these positions, confidential inquiries, including contacts with the applicants' supervisors and associates, or with other persons familiar with their qualifications, may be made to obtain further information about their technical, professional and personal qualifications and about their character and suitability for these positions.

WRITTEN TEST

No written test is required. Competitors will be rated on a scale of 100 on the basis of education, experience, training, and personal qualifications in relation to the requirements of the specific positions for which they are being considered. Ratings will be based upon competi-

tors' statements in their applications and upon any additional evidence which may be secured through qualification inquiries or similar measurement devices used in the examination.

SELECTIVITY IN PLACEMENT

Assignments at the GS–5 and GS–7 grades are general and selection of eligibles is made from those generally qualified at these grades. At the GS–9 and higher grades, the positions become more specialized, and the Fishery Biologist may work in a specific scientific area of fishery biology, such as that dealing with certain types of fresh-water, marine, or anadromous fishes, crustaceans, molluscs, or with the management of certain fisheries. Some of the work is strongly oriented toward the oceanographic or statistical phases of fishery research and may require specific training in these areas. In filling positions at GS–9 and above, selective placement may be authorized based on the need for specialized requirements for any position or group of positions.

A varying amount of selectivity is required to fill many Fishery Biology (Research) positions, depending upon the specific demand of the positions in question. In some positions, the most important requirement may be the high degree of creativity, research imagination, or interpretive or integrative ability to do the work. In other areas, the paramount requirements may be related to the ability to perform highly specialized work in a specific area of fishery research, oceanography, in the statistical areas in which fishery biologists work, or in an area of a related field or discipline of science, where the work is applied directly to fishery research. Any such positions should be filled on the basis of the job demands, and only those applicants whose total background of education, training and experience shows that they possess the knowledges, abilities and skills needed to meet these job demands will be considered eligible for such specialized positions.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition applicants must possess emotional and mental stability. Also a few positions may require the ability to pilot a plane. In such instances, applicants must meet the physical requirements prescribed for possession of the necessary pilot's license.

WILDLIFE BIOLOGY SERIES

Wildlife Biologist (General) GS-5/15

Wildlife Biologist (Management) GS-9/15

Wildlife Biologist (Research) GS-9/15

DESCRIPTION OF WORK

Wildlife Biologists perform professional and scientific work in connection with the conservation and management of wildlife, or in the determination, establishment and application of the biological facts, principles, methods, techniques, and procedures necessary for the preservation, protection, and management of wildlife. This work may involve (1) study of distribution, habits, life history, and classification of birds, mammals, and other forms of wildlife, including the relationship of these animals to agriculture and other interests throughout the nation; (2) technical consideration of various phases of wildlife management which require a thorough understanding of wildlife biology; (3) administration and management of various Federal wildlife programs; and (4) research work which may involve study of the ecology of various forms in their natural environment, wild animal nutrition, bird and mammal parasites and diseases, development and testing of methods used to control populations of harmful species, or management studies directed toward specific forms of wildlife and wildlife habitats.

The duties of these positions vary considerably with the grade. Appointees at the GS-5 and GS-7 grades are expected to have sufficient knowledge of wildlife biology so as to be trained quickly for more responsible assignments. At the GS-9 and GS-11 grades, the incumbents handle increasingly responsible research and management assignments in specialized fields of wildlife biology. They may serve as staff specialists or be given some supervisory responsibilities. At the GS-12 level, the Wildlife Biologist is considered to be competent in his specialty and handles difficult and responsible assignments, either independently or by supervising others. The GS-13, GS-14, and GS-15 positions may involve research work on wildlife problems, or work performed in connection with the direction, administration, and supervision of part (or all) of a Government-wide program.

Some of the work may involve travel or assignments where the employee will be required to operate a motor vehicle, heavy duty equipment, boat, or airplane.

BASIC REQUIREMENTS FOR ALL GRADES

For all grades of *nonresearch positions*, applicants must have successfully completed one of the following:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with at least 30 semester hours in biological science. This course-work must have included:

—At least 9 semester hours in such wildlife subjects as mammalogy, ornithology, animal ecology, wildlife management, or research courses in the field of wildlife biology; *and*

—At least 12 semester hours in zoology in such subjects as general zoology, invertebrate zoology, vertebrate zoology, comparative anatomy, physiology, genetics, ecology, cellular biology, parasitology, entomology, or research courses in such subjects; *and*

—At least 9 semester hours in botany or the related plant sciences. (Excess courses in wildlife biology may be used to meet the zoology requirements where appropriate.)

B. Course-work in an accredited college or university which included at least 30 semester hours in biological science with 9 semester hours in wildlife subjects, 12 semester hours in zoology, and 9 semester hours in botany or related plant science, as described above in paragraph A, *plus* additional appropriate experience or education which when combined with the 30 semester hours will total 4 years of education or 4 years of education and experience. The applicant's total background must be such that it gives him a professional and technical knowledge comparable to that normally acquired through the successful completion of the

full 4-year course of study described above in paragraph A.

Applicants for *research positions* must show that they have completed a full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in zoology, wildlife biology, and botany, which has included at least 30 semester hours of course-work in biological science and 15 semester hours in the physical, mathematical, and earth sciences. This course-work must have included:

—At least 12 semester hours in such zoological subjects as invertebrate zoology, vertebrate zoology, comparative anatomy of the vertebrates, embryology, animal physiology, entomology, herpetology, parasitology, and genetics; *and*

—At least 9 semester hours of training applicable to wildlife biology in such subjects as mammalogy, ornithology, animal ecology, wildlife management, principles of population dynamics, or similar course-work of equivalent basic value in the field of wildlife biology; *and*

—At least 9 semester hours in the field of botany and related plant science; *and*

—At least 15 semester hours of training in any combination of two or more of the following: chemistry, physics, mathematics, statistics, soils, and/or geology.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, zoology or wildlife biology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS-11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when—

a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature.
b. The knowledges required for the work are *typically and preferably* acquired through graduate study.
c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-11 level after a short orientation period.

GS-12 Research positions. Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria:

a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature.
b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level.
c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS-7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS-9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

ABILITY TO COOPERATE AND WORK WITH OTHER PEOPLE

Applicants for positions at the GS-7 and higher grades, where the duties of the position involve a considerable amount of cooperative work, must show that they have the ability to establish sound, effective working relations with others including the general public.

Applicants for positions at the GS-11 and higher grades, where the duties of the position involve a substantial amount of public contact work, and the handling of difficult, controversial and complex situations requiring a considerable amount of negotiation, must also show that they have the ability to handle difficult and controversial issues, and that they can negotiate such matters effectively.

PILOT EXPERIENCE

Some of these positions, especially those involving work in the far North, may also involve pilot duties. For all positions requiring the incumbent to pilot an aircraft, applicants must:

1. Possess a current FAA Commercial Pilot's Certificate with appropriate ratings for single-engine aircraft operation on both land and water.

2. Have a minimum of 500 hours' solo flight time in command of aircraft, not less than 100 hours of which shall be in cross-country time.

QUALIFICATION INQUIRIES

For all grades of these positions, confidential inquiries, including contacts with the appli-

cants' supervisors and associates, or with other persons familiar with their qualifications, may be made to obtain further information about their technical, professional and personal qualifications, and about their character and suitability for these positions.

BASIS OF RATING

No written test is required. Competitors will be rated on a scale of 100 on the basis of education, experience, training and personal qualifications in relation to the requirements of the specific position for which they are being considered. Ratings will be based upon competitors' statements in their applications and upon any additional evidence which may be secured through qualification inquiries or similar measurement devices used in the examination.

SELECTIVITY IN PLACEMENT

Assignments at the GS-5 and GS-7 grades are general and selection of eligibles is made from those generally qualified at this grade. At the GS-9 and higher grades, the positions become more specialized and the Wildlife Biologist may work in a specific scientific area, such as waterfowl management, big game management, or similar area of work, or deal with regional or area problems, where the duties of the position may require specific training and experience which is directly related to the work. In filling positions at GS-9 and above, selective placement may be used based on the need for specialized requirements for any position or group of positions.

A varying amount of selectivity is required to fill many Wildlife Biologist (Research) positions, depending upon the specific demand of the positions in question. In some positions, the most important requirement may be the high degree of creativity, research imagination, or interpretative or integrative ability required to do the work. In other areas, the paramount requirements may be related to the ability to perform highly specialized work in a specific area of wildlife research, or in an area of a related field or discipline of science, where the work is applied directly to wildlife research. Any such positions should be filled on the basis of the job demands, and only those applicants whose total background of education, training, and experience shows that they possess the knowledges, abilities, and skills needed to meet these job demands will be considered eligible for such specialized positions.

SPECIAL IN-SERVICE PLACEMENT ACTION PROVISIONS

The Animal Control Biology Series, GS-484, has been abolished. Positions in that series are to be reclassified to the Wildlife Biology Series, GS-486. This merger of the two series does not require reexamination of the qualifications of the incumbents.

For the purpose of applying the provisions of Section 8-2 d(4) of FPM Chapter 338, an employee serving in a position which is reclassified in this series merger may be considered to have been serving in the position when the minimum education requirement was established. Thus, such employee may be promoted, reassigned, or transferred by in-service placement action to any other position in the Wildlife Biology Series *with the same educational requirement* in accordance with the "add-on" rule in Section 8-1(b) of FPM Chapter 337. (Research positions have a more demanding educational requirement than nonresearch positions.)

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability. Also, a few positions may require the ability to pilot a plane. In such instances, applicants must meet the physical requirements prescribed for possession of the necessary pilot's license.

Animal Scientist, GS-5/15
Dairy Scientist, GS-5/15
Poultry Scientist, GS-5/15

This standard is designed to cover all positions in the Animal Science Series, GS-487, and recognizes that the requirements of three major subject-matter specializations of the occupation are discrete.

DESCRIPTION OF WORK

Animal, dairy, and poultry scientists perform professional and scientific work concerned with the study and management of livestock, dairy animals, poultry, and other animals that are reared domestically and their products. Much of the work is performed in connection with investigative and research activities. Some positions are concerned with the management of herds or flocks in a productive operation, or with the application of a knowledge of animal, dairy, and poultry science in general.

Animal scientists primarily are concerned with the breeding, development, selection, feeding, management, and production of livestock and similar animals, and with the production and care of their products. The investigative and research work performed deals largely with the breeding, growth, housing, and management of animals; the determination of the nutritional, biophysical, biochemical, and physiological relationships involved; the selection of appropriate morphological, anatomical, physiological, and genetic characteristics; and similar phases of animal science that might apply in the establishment of sound breeding programs, might result in better and more efficient ways of feeding and managing herds, or that might better animal science in general. The nonresearch work is more concerned with the management of animals in a productive operation, or with the application of animal science to farm management in general.

Dairy scientists concentrate on dairy animals and are specifically concerned with milk production and the various factors that influence milk production. The investigative and research work performed deals with the establishment of appropriate lineages of dairy animals; the breeding and development of animals that are more productive, manageable, and adaptable to varying climatic, environmental, and related conditions; the determination of nutritional, biophysical, biochemical, and physiological relationships involved; the production of better qualities of milk; and the effect of other relationships, e.g., microbial activities, on the animals and on the milk they produce. The nonresearch work is more concerned with the management and care of the animals in a productive dairy operation, or with the application of dairy science to farm management in general.

Poultry scientists are specifically concerned with poultry and poultry products. The investigative and research work performed deals with the establishment and maintenance of appropriate standards for breeding and disease control purposes; the determination of breeding methods and genetic factors that affect the performance of poultry; the isolation and establishment of nutritional and nonnutritional relationships and the determination of the interrelationship of genetics and nutrition, physiological relations, management practices, and environmental factors as they affect poultry; the effects of various physiological relationships on growth, viability, production, and reproduction in poultry; and the effect of other relationships, e.g., neoplasms, on poultry and poultry products. The nonresearch work is more concerned with the management of flocks in a productive, hatching, rearing, or egg producing operation, or with the application of poultry science to farm management in general.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements

Candidates must have successfully completed one of the following requirements:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in animal science, dairy science, poultry science, or a closely related discipline or field of animal science. This course of study must have included at least 30 semester hours in the basic biological

and agricultural sciences, with a minimum of 20 semester hours in animal science. The quality of this course work must have been such that it would serve as a prerequisite for more advanced academic study in the field of science to which it pertains.

B. A total of at least 30 semester hours of course work in the basic biological and agricultural sciences, including a minimum of 20 semester hours in appropriate animal science subjects, as described in A above, plus a sufficient amount of additional experience or education to total 4 years of education and experience or 4 years of education. The nature and quality of this additional experience or education must have been such that, when combined with the prescribed 30 semester hours in the basic biological and agricultural sciences, it would give the individual a professional and scientific knowledge of animal science equivalent to that normally gained by successfully completing the full 4-year course of study described in A above.

For animal scientist positions, at least 10 of the required 20 semester hours in animal science must have been in animal science courses dealing with the breeding, feeding, production, and management of livestock, and the care and preparation of their products.

For dairy scientist positions, at least 10 of the required 20 semester hours in animal science must have been in dairy science.

For poultry scientist positions, at least 10 of the required 20 semester hours in animal science must have been in poultry science.

Candidates for positions in research, development, and comparable highly technical and scientific functional areas of animal, dairy, or poultry science work must meet the requirements prescribed in A above.

NOTE: Most universities offering appropriate programs, now confer degrees in "animal science" rather than in "animal husbandry." This change normally is a simple change in program name designation only, rather than in curricula content. Some few universities, however, may currently continue to maintain departments, offer programs, and confer degrees in "animal husbandry." Therefore, in recognition of the existence of this situation in academia, reference herein to course work in respective animal, dairy, or poultry sciences, *where applicable*, may be considered synonomous with corresponding course work in animal, dairy, or poultry husbandry.

Qualifying course work in animal science, dairy science, and poultry science

Animal science in this context is an applied science that can be identified both as an animal science and an agricultural science, inasmuch as it is primarily concerned with the study and management of various forms of domestic animals and birds, and with their products. Even though the subject-matter fields of animal science are developed generally from the same base of knowledges, the type of animal or product and the way it is managed require a different emphasis of knowledge in the different kinds of the work and dictates a different curriculum or pattern of training. For example, an animal scientist may be most concerned with the production of meat animals, fibers (wool, etc.), or fur. The dairy scientist may be primarily concerned with milk production and in the care and quality of the product, and for that reason most interested in the lactation process, the care and management of dairy animals, and the operations of a dairy. The poultry scientist may be concerned with egg production and the care and management of poultry, where the physiology and reproductive processes of the animal are quite different than those characteristic of other animals.

This work requires the application of knowledges from a number of disciplines and fields of sciences. The animal, dairy, or poultry scientist must thoroughly understand the scientific principles that underlie the breeding, selection, development, and productive capacity of the animals concerned and the quality and usability of their products. A scientist trained in such fields as physiology, genetics, chemistry, biochemistry, nutrition, physics, biophysics, microbiology, food technology, fiber technology, and similar areas of science may contribute sub-

stantially to animal, dairy, or poultry science research. This standard has been designed with this in mind, and should be interpreted accordingly.

Course work in such subjects as agronomy, animal, dairy, or poultry science, biology, botany, zoology, microbiology, physiology, genetics, and biochemistry may be used to meet the general 30 semester hour requirement in the basic biological and agricultural sciences.

Course work in such subjects as zoology, embryology, animal breeding or genetics, physiology, biochemistry, and any phase of animal, dairy, or poultry science may be used to meet the 20 semester hour requirement in animal science.

Course work in animal science includes those subjects dealing with the specific kinds and classes of livestock, e.g., cattle, swine, sheep, or fur bearers, their breeding and development, nutrition, management, and utilization, and the qualities and uses of their products, e.g., meat, wool, or leather.

Course work in dairy science includes those subjects dealing with the specific kinds and classes of dairy animals; their nutrition and management; the utilization of their products; and courses dealing with the establishment of lineages, various phases of a dairy operation, milk quality, etc.

Course work in poultry science includes those subjects dealing with the kinds and classes of poultry; their breeding and development; the establishment of specific strains; their nutrition and management; the utilization of their products; and courses dealing with specific areas peculiar to poultry science, such as genetic or environmental factors, or rearrangement of cycles.

GS-5—The basic requirements that apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, animal, dairy, or poultry science.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he/she is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One year of full-time graduate education.

GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two years of full-time graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph.D. or equivalent); *or* Three years of full-time graduate education.
GS-11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least two full academic years of graduate study are required when: a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-11 level after a short orientation period.
GS-12 Research positions.	Completion of all requirements for a doctoral degree (Ph.D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph.D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (See the Part II, Section III, Introduction to Handbook X-118, for specific information on crediting "full time" and "part time" graduate study.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS-7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS-9. In each case, the pertinent criteria in Section III of Part II, Instructions to Users, of Handbook X-118 must be met.

QUALIFYING FIELDS OF GRADUATE STUDY

To be qualifying, this graduate study must have been in animal, dairy, or poultry science; or in a specialized subject-matter area of science directly related to these sciences, such as feeds and feeding or nutrition, breeding, and development, physiology, or genetics, where the curriculum or pattern of training placed major emphasis on one of the recognized specialized subject-matter areas of animal, dairy, or poultry science.

Graduate study in related disciplines or fields of science, such as agronomy, microbiology, biochemistry, biophysics, and dairy, food, or fiber technology (where it deals with pertinent products or their production) may also be qualifying, *provided* the graduate work placed a sufficient amount of emphasis on one of the recognized fields or subject-matter areas of animal, dairy, or poultry science.

CREATIVE OR OUTSTANDING RESEARCH

Candidates who furnish positive evidence that they have performed highly creative or outstanding research, that either has led or can lead to a major advance in a specific area of research, to a major advance in the discipline or field of science involved, or to major advances in science in general, may be rated on this basis for *highly demanding research positions* requiring similar abilities. Under these circumstances, candidates can be rated eligible for the next higher grade above that for which they would—*(Continued on pg. 5.)*

normally be rated, *provided* they have not been rated eligible at this grade on the basis of meeting the graduate study requirements.

To receive this rating, the work must have been creative in the sense that it developed a basic principle, product, concept, method, approach, or technique, or provided a body of basic information that opened the way for major advances in the discipline or field of science involved, or to advances in science in general, by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of science in a major area.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

BASIS OF RATING

No written test is required. Candidates' qualifications will be rated on a scale of 100, and will be evaluated on the basis of their education, training, and experience as shown in the application, and on corroborative evidence obtained by the Office of Personnel Management. Standards for certification in animal science or any animal science specialization by a certifying Registry in animal science may be considered in evaluating candidates for animal science positions.

SELECTIVE PLACEMENT

A varying amount of selectivity is required to fill the more specialized positions in this series, and the paramount requirements for these positions may be related to the candidate's ability to perform the particular kind of highly specialized work involved, or to the ability to perform similar work in related occupational areas of science, where the work applies directly to the subject-matter field of animal, dairy, or poultry science that is involved.

For example, animal, dairy, or poultry scientists usually are generally prepared in the biological, physical, and biological sciences, and well trained in the animal sciences and their basic field of interest, i.e., animal, dairy, or poultry science. They may specialize within this field of science. Assignments usually are made according to the basic field of specialization at the GS–5 and GS–7 grades. At the GS–9 and higher grades, the work tends to become more specialized and may require specific training and experience in various subject-matter areas of animal, dairy, or poultry science.

For animal science positions, the work tends to specialize in such subject-matter areas as those dealing with breeding and development, nutrition, utilization, meat quality, livestock management, or those dealing with specific kinds and classes of livestock, e.g., beef cattle, swine, sheep, or fur bearers.

The specializations of dairy science positions include such subject-matter areas as those dealing with breeding and development, establishment of lineages, nutrition, utilization, milk quality, management of dairy herds, etc.

The pattern of specialization in poultry science positions includes such subject-matter areas as those dealing with specific genetic or environmental factors, nutritional problems (including tolerances, use of antibiotics, etc.), establishment of specific strains, rearrangement of cycles, management practices, and similar specializations.

These positions shall be filled on the basis of the job demands, and only those candidates whose total background of education, training, and experience shows that they possess the knowledges, abilities, and skills needed to meet these job demands will be considered eligible for such positions and referred for employment consideration.

Use of eligibility requirements for Registry certification in specialty areas of animal science may be useful in determining qualifications.

NOTE: A certifying Registry in animal science addresses qualification requirements in specialty areas such as nutrition, production, or evaluation.

PHYSICAL REQUIREMENTS

The following requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions. Applicants and employees must be able to perform the essential functions of the position without risk to themselves or others. In most cases, a specific medical condition or impairment will not automatically disqualify an applicant or employee. A physical condition or impairment may be disqualifying only if the condition, for good medical reason, precludes assignment to or warrants restriction from the duties of the specific position. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation shall also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual, Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

Home Economist GS-5/15

DESCRIPTION OF WORK

Home economists perform professional work concerned with the selection, care, use, and management of foods, clothing, housing, and the equipment and furnishings that are used in the home. Some of the work involves studies and investigations concerning consumer and food economics and changing patterns of family living; diets and nutritional levels and the composition, quality, and nutritional values of different foods, in relation to the physiological requirements of the human body; the needs, adequacy, usability, and arrangements of housing space and equipment; and the properties and use of household fabrics. Other work involves carrying out programs designed to advise, inform, and instruct the public, professional and consumer groups, or homemakers about such matters as the management of the home or carrying out programs of a specific nature, e.g., school lunch programs, institutional management, military feeding, community development, etc.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements (fully qualifying for grade GS-5)

Candidates must have successfully completed one of the following requirements:

A. A course of study in an accredited college or university leading to a bachelor's or higher degree with major study in home economics or a closely related discipline or field of science. This course of study must have included at least 20 semester hours in or directly applicable to one or more of the following fields of home economics: foods and nutrition, home management and household economics, housing and household equipment, textiles and clothing, or child and family development.

B. A total of at least 20 semester hours in home economics, as described in A above, plus a sufficient amount of additional experience or education to total 4 years of education and experience or 4 years of education. The nature and quality of this additional experience or education must have been such that, when combined with the prescribed 20 semester hours in home economics, it would give the candidate a professional knowledge of home economics comparable to that normally gained by successfully completing the course of study described in A above.

Candidates for positions in research, development, and comparable highly technical and scientific functional areas of home economics work must meet the requirements described in A above.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, home economics.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

a. Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

b. Successful completion of a dietetic internship approved by the American Dietetic Association qualifies for appointment to the GS–7 level in home economics positions that are concerned primarily with work in nutrition, or in menu and food preparation.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in

General Schedule Occupations," in part III of this handbook.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

QUALIFICATION INQUIRIES

For all grades of these positions, confidential inquiries, including contacts with the candidates' supervisors and associates, or other persons familiar with their qualifications, may be made to obtain further information about their technical, professional, and personal qualifications and their character and suitability for these positions.

BASIS OF RATING

No written test is required. Competitors will be rated on the basis of their education, training, experience, and personal qualifications in relation to the requirements of the specific positions for which they are being considered. Ratings will be based on competitors' statements in the applications, and upon any additional evidence that may be secured through qualification inquiries or similar measurement devices used in the examination.

SELECTIVE PLACEMENT

A varying amount of selectivity is required to fill specialized home economist positions. The paramount requirements for these positions may be related to the candidate's ability to perform the particular kind of highly specialized work involved, or to his ability to perform similar work in related occupational areas of science. For example, home economists are usually trained generally in the broad field of home economics or one of the functional subject-matter areas of home economics as indicated above, i.e., foods and nutrition, home management and family economics, housing and household equipment, textiles and clothing, and child and family development, or in similar functional or subject-matter fields, i.e., institutional management, food management, etc.

Many assignments require depth of experience in a particular functional or subject-matter area of home economics, or the application of knowledge thus gained to specialized problems, such as those found in a depressed area.

Any such position shall be filled on the basis of the job demands; and only those candidates whose total background of education, training, and experience shows that they possess the knowledge, abilities, and skills needed to meet these job demands will be considered eligible.

GUIDE FOR EVALUATING EDUCATION AND EXPERIENCE

The following factors are suggested for consideration in evaluating or rating the relative qualifications of candidates:

1. *The extent, nature and content of qualifying basic education*
   a. *Minimum requirements*

      The statements in paragraphs A and B under *Experience, Training and Related Requirements* above describe the minimum education a person must have to be able to enter the professional field of home economics.

      The following considerations apply in evaluating coursework that meets basic requirements:

      —Home economics is a heterogeneous occupation that brings together a number of disciplines and fields of science and applies them in various ways. Home economists must have a thorough grasp of the underlying biological and physical sciences, and of professional methods and principles. The basic requirements may vary considerably with the subject-matter area involved.

—Coursework may be considered to meet the requirements in A or B above when it is in an appropriate subject-matter area of home economics, in a discipline or field of science where the course of study dealt directly with problems peculiar to a subject-matter area of home economics, or in a curriculum or pattern of training that can be applied in home economics.

—Study in appropriate specialized areas of chemistry, microbiology, physiology, dietetics, sociology, economics, food technology, and closely related subjects that can be applied directly to home economics is also qualifying.

—The applicability of some coursework depends upon the specialized requirements of positions to be filled. For example, some positions require sound preparation in chemistry and nutrition, and for these chemistry may be considered to be qualifying to the extent that the candidate may have taken little work in home economics, other than in nutrition. Another example is found in some positions in the subject-matter area of home management and family economics, where courses in food management, institutional management, home economics education, extension services, child and family development, and community services are particularly valuable.

—Such study is not considered to be qualifying *per se*, but is evaluated in relation to the extent it meets the actual requirements of the specific kind and grade of positions for which the candidate is being considered. To be fully qualifying, it must show that it gives the candidate the essential scientific knowledges, skills, and abilities needed to perform the duties of such a position.

b. *Work that exceeds minimum requirements*

To ascertain whether candidates may be able to perform work in a superior manner, and to rate them accordingly, consideration should be given to the extent to which their background includes the following features:

(1) Substantially more than the minimum 20 semester hours of required coursework in home economics.

(2) Work in the biological, physical, and social sciences beyond the required introductory courses. This would include advanced work in such areas as biochemistry, physiological chemistry, methods in metabolism, microbiology, physiology, public health, consumption economics, and psychology or sociology pertaining to special groups.

(3) Courses in college mathematics, statistics, computer programing, and electronic instrumentation are of particular value in filling positions involving laboratory investigation and research, or studies of the characteristics and practices of family and consumer groups.

2. *The quality of academic achievement*

As reflected under Experience, Training and Related Requirements, superior undergraduate academic achievement is qualifying for grade GS–7. However, in ranking candidates at GS–7, the education of a candidate with graduate education should be assigned a higher quality rating than superior undergraduate education.

3. *Nature, recency, and progressiveness of experience*

All other things being equal, the best experience is that which shows rapid progression in duties and responsibilities at least to a level demonstrating the candidate's ability to perform successfully at the level for which he is being considered. Stale experience or experience which has

not progressed steadily in difficulty and responsibility can be considered as a detracting factor.

4. *Accomplishments*

Considered here are the candidate's demonstrated knowledge of home economics and related sciences, his professional interests as shown by self-development activities, his stature in the profession, and his accomplishments (considering opportunities for such).

Evidence used to appraise accomplishments includes publications, participation in professional societies, leadership activities in the field of endeavor, honorary and other recognition for contributions to the field, and the like. Publications should be carefully appraised in terms of their total contribution to knowledge about the field, rather than judged by volume. Citations by others as an authority may serve as a partial index of the value of published work. The extent of professional recognition may be judged by such things as invitations to present papers before professional groups (international, national, regional, local); use of publications as a resource by other home economists; and activities in professional societies.

As they advance in level of responsibility, home economists are expected to engage in continuing and vigorous professional development as a method of keeping abreast of the field. Lack of evidence of this type of development legitimately may be considered as detracting from the overall quality level assigned. Accomplishments should be appraised in consideration of the opportunities afforded by past assignments and the level of these assignments.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, most positions require the ability to distinguish either basic or shades of colors. Candidates must also possess emotional and mental stability.

BIOLOGICAL SCIENCE STUDENT TRAINEE SERIES GS–099

Student Trainee (Appropriate Specialty) GS–2, 3, 4, 5

The qualification standard appearing under the General Student Trainee Series, GS–099–0, is to be used for these positions.

ACCOUNTING AND BUDGET GROUP

This standard applies to various types of clerical and supervisory clerical positions in the GS–500 Group (see series listed).

Financial Clerical and Assistance Series, GS–503

Cash Processing Series, GS–530

Voucher Examining Series, GS–540

Payroll Series, GS–544 [1]

Military Pay Series, GS–545

Budget Clerical and Assistance Series, GS–561

Time and Leave Series, GS–590

Accounting Clerk GS–4, 5, 6

Supervisory Accounting Clerk GS–4, 5, 6

EXPERIENCE AND TRAINING REQUIREMENTS

Except for the substitutions provided for below, applicants must meet the following experience requirements.

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–4	1	1	2
GS–5	1	2	3
GS–6	1	2½	3½

General experience

General experience is experience obtained in the performance of clerical duties in any area of work.

Specialized experience

Specialized experience is clerical experience obtained in the kind of work in which the duties of the positions are to be performed. For example, the specialized experience required for Payroll Clerk GS–4 is 1 year of experience in the computation, preparation, or maintenance of payrolls and pay records for a Government or non-Government agency, organization, or institution.

Supervisory positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

Quality of experience

Applicants must show either (*a*) 6 months of experience at a level of difficulty comparable to the next lower grade level, or (*b*) 1 year at a level comparable at least to the second lower grade level in the Federal service, of which at least 6 months must have been specialized experience. The applicant's total experience must give evidence of ability to perform duties of the position at the grade level for which an eligible rating is assigned.

SUBSTITUTIONS ALLOWED

For a maximum of 3 years of the required experience (1 year of general plus 2 years of specialized experience) study successfully completed in a resident school or institution may be substituted as follows:

General experience only

1. Study completed in a college, university, or junior college may be substituted on the basis of *one-half academic year* of study for *6 months* of experience.

2. Study completed in a business or commercial school or other comparable institution above the high school level may be substituted on the basis of *one-half academic year* of study for *6 months* of experience provided such study included subjects such as bookkeeping, commercial law, and business arithmetic. No credit will be allowed for training which has been obtained only or primarily in shorthand or typing or business English.

3. Excess specialized experience may be substituted for general experience on a year-for-year basis.

[1] Also see alternative qualification standard for in-service placement. The alternative standard is based on a job element approach and is filed under GS–544.

Specialized experience

1. For the first year of specialized experience, study successfully completed in a resident school above the high school level may be substituted at the rate of *one-half academic year* of study for *6 months* of specialized experience provided that the study leads to a major (or includes 6 semester hours, or the equivalent per year) in accounting or business administration.

2. For the second year of specialized experience, successfully completed study of the quality described in paragraph 1 above may be substituted at the rate of *1 academic year* of study for *6 months* of specialized experience. Therefore, a full 4-year course of study of this type may be substituted for a maximum of 3 years of the required experience (1 year of general plus 2 years of specialized experience) and is fully qualifying for grade GS–5. No substitution may be made for the required supervisory experience at any grade level or for 6 months of the specialized experience required for grade GS–6.

3. Clerical experience in related work areas which has provided a general knowledge of the subject-matter field in which the duties are to be performed is acceptable as meeting the requirement for specialized experience for GS–4 positions; and for a maximum of 6 months of the required specialized experience for grades GS–5 and 6. Examples of positions in which such experience may have been acquired are: (*a*) statistical clerk or statistical coding clerk engaged in the processing or compilation of accounting or financial data; (*b*) property or stock control clerk engaged in the maintenance of inventory records and property accounts; (*c*) claims examiner engaged in the examination and processing of claims involving direct monetary obligations of the Government; (*d*) bookkeeping machine operator engaged in the posting of official accounts and the compilation of reports and statements from accounting records.

DEFINITION OF TERMS

"School above the high school level" means an educational institution (e.g., a business or commercial school or college, a junior college or college or university) for which high school graduation or its equivalent is prerequisite.

"Full-time study" in the case of business or commercial schools is the equivalent of at least 20 classroom hours of instruction per week plus necessary outside study. Part-time study is prorated on this basis also, but is creditable only in amounts equivalent to one-half academic year or multiples thereof.

"An academic year" consists of approximately 36 weeks of full-time study, or 30 semester hours, or the equivalent.

WRITTEN TEST

A written test is required for all positions at the GS–4 level, but not at the GS–5 level or above.

The written test should be waived for in-service placement actions, but not for appointments outside the register. The test may be waived for applicants for positions of Military Pay Clerk at the GS–4 level who qualify on the basis of specialized experience.

BASIS OF RATING

Competitors for positions at GS–4 for which the written test is required will be rated on the basis of the written test results.

Competitors for Military Pay Clerk positions at the GS–4 level for whom the written test is waived, and competitors for all positions at grades GS–5 and above, will be rated on the basis of an evaluation of experience, education, training, and demonstrated aptitude to perform the duties of the position for which application is made.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appoint-

ment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

Financial Clerical and Assistance Series GS-503-0
Cash Accounting Series GS-530-0
Voucher Examining Series GS-540-0
Payroll Series GS-543-0
Time, Leave, and Payroll Series GS-544-0
Military Pay Series GS-545-0
Military Time, Leave, and Pay Series GS-546-0
Budget Clerical and Assistance Series GS-561-0
Time and Leave Series GS-590-0
Military Time and Leave Series GS-591-0

Accounting Clerical, Supervisory, and Administrative Positions GS-7/15

This standard is considered appropriate for filling such positions as Cash Accounting Assistant; Voucher Examiner; Time, Leave, and Payroll Supervisor; Benefit-Payment Roll Supervisor; etc., in the series and grades shown above.

Experience, Training, and Related Requirements

A. *Length and kind of training and experience required*

Except for the substitutions provided for below, applicants must have had as a minimum the length of experience specified in the following table.

Grade of position	Total (years)	Length of experience required	
		General (years)	Specialized (years)
GS-7	4	2	2
GS-8	4½	2	2½
GS-9	5	2	3
GS-10	5½	2	3½
GS-11 and above	6	2	4

General experience is work in (1) accounting, auditing, or bookkeeping of a commercial type in such fields as cost accounting, financial accounting, etc., or (2) maintaining or examining records for the issuance, collection, safekeeping, or disbursing of money and securities by municipal, State, or Federal government agencies, or commercial, industrial, or eleemosynary concerns and institutions (including such records as cost, time, payroll, expenses, revenues, expenditures, appropriations, revolving funds, working capital, trust funds, or other fiscal records), or (3) supervising work described in (1) and (2) above with responsibility for the technical adequacy thereof, including supervision of machine accounting groups.

Specialized experience is experience in the kind of work which is to be done in the position for which the examination is held and for which application is made. For example, the specialized experience required for a payroll position is experience in payroll work—preparation, maintenance, or supervision of payrolls, pay records, etc., for a Government agency, a commercial or industrial concern, etc. (Specialized experience in excess of the required length may be accepted as general experience.)

B. *Provision for substitution of education for experience*

For a maximum of 2 years of the required general experience and 1 year of the specialized experience, applicants may substitute the following:

1. Study successfully completed in a resident school above high-school level with a major in the field of accounting or business administration on the basis of 1 academic year of study for 9 months of experience. (An academic year of study is based on the successful completion of 30 semester hours of study or its equivalent.); *or*

2. Teaching of any of the fields named in (1) above in a resident school above high-school

level on the basis of 1 academic year of teaching for 9 months of experience; *or*

3. Any time-equivalent combination of (1) and (2) above; *or*

4. The possession of a certificate as a Certified Public Accountant in a State, Territory, or the District of Columbia, provided the certificate number, date, and place of issuance are clearly stated in the application.

5. In addition, applicants who offer a bachelor's degree within 24 semester hours, or its equivalent, in any of the fields named in (1) above as a substitution for 2 years of the required general experience and 1 year of the specialized experience may substitute a master's degree in any of the fields named for 1 additional year of specialized experience. Under this provision, an applicant with a master's degree in the named fields of study may qualify at the GS-7 level.

C. *Other requirements*

Quality of experience. Applicants must have had progressively responsible experience of a scope and quality sufficient to demonstrate conclusively the ability to handle the duties of the position. The degree of fiscal responsibility involved must have been proportionately greater for each successively higher grade for which the applicant is being considered. The prescribed lengths and levels of experience must be met, but meeting them does not of itself entitle one to an eligible rating. The measure of total performance must be so full as to give promise of at least satisfactory performance at the grade or grades for which he is being considered.

For grades GS-12 and above, at least 1 year of the required specialized experience must have been at a level of difficulty comparable at least to that of the next lower grade in the Federal service. For grades GS-11 and below, at least 6 months of the required specialized experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service, or 1 year must have been at a level comparable at least to that of the second lower grade.

Supervisory positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

Physical requirements

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

FINANCIAL ADMINISTRATION AND PROGRAM SERIES

Financial Specialist GS–5/15
Financial Administrator GS–11/15

COVERAGE

This standard is appropriate for filling administrative (two-grade interval) and program positions pertaining to accounting, budget, or other fiscal operations in grades GS–5/15. Do not use for positions requiring the application of professional qualifications.

DESCRIPTION OF WORK

Incumbents of positions plan, direct, supervise, perform, or report upon fiscal work of a general or specialized nature. Such work may encompass: 1) developing financial controls; 2) interpreting and applying special laws, regulations, decisions, and rulings; 3) examining financial transactions to determine their legality; 4) administering programs and systems for issuance, collection, or control of appropriated or nonappropriated funds; 5) serving in various capacities depending upon the financial and operational responsibilities; etc.

PROMOTIONS

The provisions of 5 C.F.R. 300, Subpart F, must be complied with concerning the rate at which employees may be promoted, irrespective of their qualifications.

USE OF THE STANDARD

This standard has two parts. Part I is designed for general use in filling positions. Part II provides alternative minimum qualification requirements which may be used for inservice placement actions.

Part I

EXPERIENCE REQUIREMENTS

Except for the substitution of education provided for below, candidates must have had the amount and kind of experience indicated in the following table and described below:

Grade level	General experience (years)	Specialized experience (years)	Total experience (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11 and above	3	3	6

General experience

General experience is any kind of experience which provided a good basic or general knowledge of the principles of organization, management, and administration. Excess specialized experience may be applied to general experience requirements.

Specialized experience is operating administrative or program experience in a type of work or a combination of functions directly related to the position to be filled, or incomparable work or functions. This experience must have been sufficiently responsible to show clearly the candidate's ability to perform the duties of the position at the grade for which he/she is being considered.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. *For general experience*—For a maximum of 3 years of general experience, study successfully completed in an accredited college or university may be substituted at the rate of 1 year of education for 9 months of experience.
2. *For specialized experience*—Graduate education that has equipped the candidates with the knowledges and abilities to perform fully the work of the position being filled may be substituted for specialized experience as described below. Graduate education is accepted at the rate of one full academic year for one year of specialized experience.

   For 1 year of specialized experience—One full academic year of graduate education in business administration, accounting, or other fields directly related to the position to be filled. (This amount and kind of edu-

cation meets all the requirements for grade GS–7.)

For 2 years of specialized experience—Grade GS–9 positions are typically independent working positions rather than trainee positions. Therefore, it is important that candidates be prepared to work with the kind of independence and responsibility expected of employees at that grade. For many such positions, graduate education alone will not provide such preparation. However, for some positions, especially those primarily involving research, development, or analytical work, or participation in management training programs, graduate education may be qualifying. The substance of the graduate course work should be directly related to the job being filled, e.g., a master's degree in public administration or business administration would be appropriate for a management training position. (Two full years of appropriate graduate education or a master's degree in an appropriate field meets all requirements for grade GS–9.)

3. The Superior Academic Achievement Standard in section III of part II, Instructions to users, of this handbook, is applicable at grade GS–7.

4. A certified Public Accountant or a Certified Internal Auditor certificate obtained through written examination is fully qualifying for GS–5.

SUPERVISORY POSITIONS

For supervisory positions, use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of this Handbook, in conjunction with this standard.

Alternative Minimum Qualifications Requirements

Qualification standards covering other two-grade interval work in the GS–500 group may be cross-referenced for determining minimum qualifications when a position involves mixtures of work classifiable in more than one occupational series.

QUALITY OF EXPERIENCE

Except for candidates who qualify on the basis of substituting education for experience, for eligibility at grades at or below GS–11, candidates must have had at least 6 months of qualifying experience comparable in difficulty and responsibility to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal Service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty and responsibility comparable to that of the next lower grade level in the Federal Service. For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must show that he/she has the knowledges, skills, and abilities needed to perform the duties of the position for which he/she is being considered. The experience must show that the candidate has demonstrated the ability to deal satisfactorily with others, as appropriate.

WRITTEN TEST

Applicants for competitive appointment at grades GS–5 and GS–7 must pass an appropriate written test. For inservice placement actions, the test is *not* required.

SELECTIVE FACTORS

See Part II for a discussion of selective factors.

BASIS OF RATING

Candidates for competitive appointment at grades GS–5 and GS–7 will be rated on the basis of their scores on the written test.

Candidates for competitive appointment at grades above GS–7 will be rated on a scale of 100 on the basis of an evaluation of the nature and quality of their experience, education, and training in relation to the duties of the position involved.

Physical Ability

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment of a specific function may be compensated for by the satisfactory use of a phosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to; the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules. Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in FPM Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Part II

This part of the standard provides alternative minimum qualification requirements and material concerning the work which will be useful to those applying Part I, as well as necessary to those applying Part II.

KNOWLEDGES AND SKILLS

The alternative minimum qualification requirements reflect the fact that proficiency in the application of knowledges and skills at a given level indicates a possibility of success in similar work at the next higher level. Requirements are keyed to the progression of grade levels as set forth in the classification standard(s) appropriate for the position being filled.

Successful accomplishment of assignments equivalent to the next lower grade in the same or analogous work to the position being filled demonstrates potential to do the work of the required level of difficulty and responsibility. Work in other fields which has provided the same kind and level of knowledges and skills similarly is qualifying. Education is substitutable for practical experience when the education has provided the knowledges and skills. (Use Part I in all situations when substituting education for experience.)

The minimum knowledges and skills at the GS–5 and GS–7 entrance levels are more general than the knowledges and skills required for positions at the GS–9 and above levels. The GS–5 and GS–7 levels require basic analytic and communicative skills combined with broad general knowledges. The knowledges and skills required for GS–9 and above are more specialized. Persons typically gain and demonstrate these more specialized knowledges and skills through a) successful performance in lower grade level positions similar to the position being filled or b) related work experience in other fields or c) graduate study in appropriate fields.

Selective Factors

Selective factors must be job related, represent an extension of the basic knowledges and skills required of the position and be essential to successful performance of the position. Selective factors are knowledges and skills of a kind and level which reasonably could not be acquired on the job without undue interruption of the organization's production.

The Financial Administration and Program Series, GS–501, is a general series covering a great variety of specialized work. Typically, many positions will be "one of a kind"; therefore, the use of selective factors will almost always be required in filling positions. In nontrainee positions, knowledges and skills typically will be needed which relate to both the specialty of the position and the particular duties and responsibilities involved. For example, such requirements as knowledge to trace problems in automated accounting systems, proficiency in interpreting financial policies in regard to grant programs, and skill in drafting

manuals for the operation of pay systems may pertain to certain positions.

Positions at GS–12 and above commonly involve very demanding and responsible roles. Selective factors for positions at these grades typically will be more narrowly defined and/or set at a higher level than is necessary at lower grades. What may be appropriate as a quality ranking factor at a lower grade may have to be a selective factor in a higher graded position. For example, knowledge of accounting techniques may be a quality ranking factor in filling positions concerned with a Federal/State matching funds program. This knowledge, however, may constitute a selective factor for a position concerned with planning and implementing such a program.

For supervisory positions, the following qualification requirements are to be used in conjunction with the qualification standard for "Supervisory Positions in General Schedule Occupations," in Part III of this Handbook.

ALTERNATIVE MINIMUM QUALIFICATION REQUIREMENTS FOR ALL POSITIONS

For the GS–5 Level

A. A background which includes one year of work at no lower than GS–4 or equivalent and demonstrates:

1. Skill in analyzing problems, to include identifying relevant factors, gathering pertinent information and recognizing solutions.
2. Skill in doing thorough, accurate work that requires planning a logical sequence of steps, and
3. Skill in communicating, both orally and in writing.

Such skills typically are gained in administrative, technical, or investigative lines of work. It is also possible to acquire these skills through a variety of other means, such as volunteer work, vocational training, or substantive clerical work.

AND

B. Evidence of possession of any selective factors appropriate to the position to be filled.

For the GS–7 Level

A. A background which includes one year of work at no lower than GS–5 or equivalent and demonstrates skills required in performing the position to be filled. Such skills may be gained as a trainee in an appropriate administrative occupation or as a technician performing work in a substantially similar position.

AND

B. Evidence of possession of any selective factors appropriate to the position to be filled.

For the GS–9 and Above Levels

A. A background which includes at least one year of qualifying experience. (See Quality of Experience, below.) The overall background must demonstrate accomplishments of any of a wide range of assignments characteristic of the work of this series. Such assignments may be similar to budgeting, accounting, financial management, auditing, or other work that provides the required knowledges, skills, and abilities. Examples of work which may provide the required KSAs include administrative work in a credit and finance operation, program work directed toward collecting, classifying, evaluating or presenting accounting data, managing a budget and/or accounting program, developing specifications or criteria for implementing a funding program, comparing performance with operating plans, providing technical expertise or advice with regard to specialized programs, or performing other analytical work of a comparable nature. Experience in closely related fields is usually acceptable provided that the experience demonstrated competence in and knowledge of the work of the position to be filled.

AND

B. Evidence of possession of any selective factors appropriate to the position to be filled.

QUALITY OF EXPERIENCE

For grades GS–11 and below at least 6 months of experience must be equivalent to the next lower grade or one year at a level comparable to the second lower grade. For grades GS–12 and above a year of experience must be at a level of difficulty equivalent to that of the next lower grade. Position classification standards covering analogous work can be used in determining grade level equivalents.

GUIDE FOR EVALUATING CANDIDATES

Since positions in this occupation may have a wide variety of functions and kinds of work, identifying in this qualification standard specific knowledges and skills patterns is not feasible. Depending upon the nature of the duties and responsibilities of positions to be filled, knowledges and skills, pertinent to a given position may be obtained through a wide variety of work and training experiences. For example, in filling a position responsible for a budget and accounting program, candidates may have gained experience in such diverse areas as an office manager supervising accountants, or budget analysts, appraising organizational procedures or operations which involve financial system, preparing reports evaluating the financial status of activities or programs, or preparing and presenting budgets of appropriate complexity. Such experience may have been gained in Federal or State Government organizations, business concerns, or various public or private institutions.

Financial Manager GS-12/15

DESCRIPTION OF WORK

The financial manager directs the financial management program which, at a minimum, encompasses the coordination and synthesis of the functional activities associated with budget, accounting, and managerial-financial reporting. The program *may*, in addition, encompass other technical or specialty phases of financial management, such as auditing, credit analysis, etc. The work includes provision of staff leadership and technical guidance in reviewing, analyzing, evaluating, and reporting on program accomplishments in financial terms; comparison of performance with operating plans and standards as reflected in financial data; and reporting on and interpreting the results as requested, with the objective of promoting economy and efficiency in the execution of programs to attain maximum worth from dollars spent. Also included is responsibility for developing, coordinating, and executing financial policies, procedures, and plans; and developing, coordinating and maintaining an integrated system of financial staff services through the synthesis of data and information flow to provide the necessary financial control.

A principal aspect of directing a financial management program is that of serving as a technical financial advisor to management, including providing the technical expertise and counsel on matters with financial implications which is required by top management and operating program heads to manage the operating programs and to reach decisions.

EXPERIENCE REQUIREMENTS

All positions require at least 6 years of experience of the appropriate types as described below. At least 3 years of that experience must have been specialized experience of a type and level pertinent to the type of position to be filled. The experience should also include or be supplemented by significant supervisory or administrative responsibilities. Evidence of such responsibilities may be in the form of success in regular or special assignments or projects which involve supervisory or administrative problems; interest in supervision or management demonstrated by the performance of work assignments in a manner which clearly indicates awareness of management and/or financial problems and the ability to solve them; completion of educational or training courses in supervision and management accomplished by the application of the principles learned in work assignments; supervisory observation and evaluation of the applicant's leadership and managerial capabilities; or success in trial assignments involving supervisory or managerial tasks, in serving as a group or team leader, or in similar assignments.

General experience.—Experience in administrative, professional, technical, or other responsible work from which the applicant gained a general background knowledge of business-type operations; an understanding of the nature and characteristics of administration in the public service; a demonstrated ability to deal satisfactorily with others and to negotiate with operating personnel; ability to recognize causes of and analyze problems and recommend practical solutions.

Excess specialized experience may be substituted for required general experience.

Specialized experience.—Progressively responsible experience in at least one but preferably in two or more of the functional areas of financial management (i.e., budgeting, accounting, auditing, management analysis, program evaluation, financial reporting, managerial reporting, statistical reporting of program results, etc.) which included making objective and logical determinations of facts contained in particular bodies of data and drawing inferences on magnitudes, differences, and relationships by means of analysis, reasoning, etc., when such work involves responsibility for the selection and application of the proper evaluative or determinative technique, skill, or method of analysis and presentation.

In the total background of experience the applicant must have demonstrated possession of:

1. A broad knowledge of and ability to utilize principles, methods, techniques, and systems of financial management;
2. Ability to plan, direct, and coordinate difficult and complex programs;
3. Ability to develop, apply, and adjust financial plans and policies to attain agency objectives;
4. Ability to select, develop, and supervise a subordinate staff;
5. Ability to establish and maintain effective working relationships with all levels of management officials;
6. Ability to make oral and written presentations in a clear and concise manner;
7. Ability to apply sound, independent judgment in the solution of financial problems and in the administration of a financial program;
8. Ability to acquire a broad knowledge of the organization's total operating programs.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

QUALITY OF EXPERIENCE

Eligibility in any grade level will be based upon a clear showing that the applicant has had experience of a scope and quality sufficient to give him the ability to handle technical and managerial problems commensurate with the duties of the grade.

At least 1 year of the required experience must have been at a level comparable to the next lower grade level in the Federal service.

EDUCATIONAL AND OTHER SUBSTITUTIONS

1. Study successfully completed in a resident college or university in any field may be substituted for the required general experience at the rate of 1 year of study for 9 months of experience up to a maximum of 3 years of general experience.

2. Full-time* graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

   a. *For 1-year of specialized experience.*—One full academic year of graduate education in business or public administration, comptrollership, government, industrial engineering, economics, statistics, accounting, budgeting, or any other directly related management field.

   b. *For 2 years of specialized experience.*—Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education, which is in one of the fields described in paragraph "a" above. (This amount and kind of education meets all the requirements for grade GS-9.)

   c. *For 3 years of specialized experience.*—Completion of all requirements for a doctoral degree (Ph. D. or equivalent) or 3 full academic years of graduate education, which is in one of the fields described in paragraph "a" above. However this kind and amount of education may not be substituted for the required year of experience at a level comparable to the next lower grade level in the Federal service.

3. The possession of a certificate as a Certified Public Accountant obtained through written examination in a State, territory, or the District of Columbia, provided the certificate number, date, and place of issuance are clearly stated in the application, may be substituted for 3 years of general experience.

---

*Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for 1 year specialized experience.

SPECIAL NOTE

Some positions in this series may require the services of a professionally-qualified accountant. For such positions only persons will be considered who also meet the requirements for the Accounting Series, including passing the written test when required. (Some types of experience may satisfy the requirements of both the Accounting Series and this standard and may be credited accordingly.)

INTERVIEW

Competitors must demonstrate that they possess those personal characteristics which are needed for the performance of financial management work, including skill in making oral presentations, ability to establish and maintain effective working relationships with all levels of key management officials, persuasiveness and diplomacy in administering a financial management program, etc. Candidates may be required to appear for an interview (usually at the time of consideration for appointment) to demonstrate the degree to which they possess these and other required personal characteristics.

BASIS OF RATING

Persons who meet the general and specialized experience requirements will be rated on a scale of 100, based upon an evaluation of the applicant's total experience and training, as evidenced in the application and upon any additional evidence received by the Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2; in addition, applicants must possess emotional and mental stability.

EVALUATING CANDIDATES

Many types of occupations and positions provide an opportunity for especially capable individuals (who have the requisite technical competence in combination with personal characteristics) to acquire and learn to apply the extensive practical and theoretical knowledges and skills essential to successful performance in financial management positions.

In addition, the various individual requirements for financial management positions differ in degree from one position to another as a consequence of the varied interrelationships which exist between management's expectations and demands on the incumbent, and the relative technical competence available in different segments of the subordinate staff, the nature of the organization's mission and programs, any operating program and financial management program changes which are desired by management, and many other factors of a similar nature.

To determine whether any specific individual has acquired the ability to perform successfully in a given financial management position requires a careful and detailed analysis and evaluation of both technical competence and personal characteristics. The question to be answered is not just what length and kind of experience does the applicant bring to the position but, more importantly, what did the applicant—as an individual—learn from his experience which would be pertinent and valuable in the job to be filled. It is extremely important in financial management positions that the appointee possess the quality as well as the kind and quantity of financial expertise and personal characteristics which are essential to success on the job.

EVALUATION CHART

The following chart is a suggested device which can aid materially in evaluating candidates for financial management positions. The use of this or a similar or equivalent evaluation procedure is especially recommended in filling positions through some in-service action such as promotion or transfer. It may also be useful in some competitive recruitment situations. The thoughtful and thorough evaluation of the individual candidates should:

(a) facilitate the identification of the spe-

cific strengths and weaknesses of each applicant;

(b) show in sharp contrast whether each applicant's strong points match the most important features of the job to be filled;

(c) reveal whether the individual applicants do in fact possess the required *quality* of knowledge, ability and overall capacity; and

(d) assist materially in determining the relative rank of each acceptable applicant among his competitors.

In using the following chart it is necessary to assemble and consider as much information as possible about each candidate. Some individual personnel measuring devices or examining techniques are better suited for evaluating some individual personal characteristics than for evaluating others. For this reason, it is typically necessary and desirable to use a variety of personnel measuring devices or techniques in evaluating each candidate. Among the techniques which will be useful in evaluating applicants are:

a. Review of overall work history;
b. Review of performance on specific past jobs;
c. Review of work produced;
d. Reference inquiries or checks (personal calls or through vouchers);
e. Supervisory appraisals;
f. Qualifications investigations;
g. Individual personal interviews;
h. Group oral interviews.

It is important that each factor which is important in the specific job to be filled be evaluated through at least one measuring device which is appropriate for that factor. (Additional guidance may be found in appendix A, part II of this handbook titled "Guide to Evaluation of Employees for Promotion.")

Financial Manager

Knowledge, abilities, and skills to be evaluated:	Relative importance in job to be filled: 0—not relevant 1—desirable 2—required 3—very important				Degree to which possessed				How measured (E.g., written test, interview, supervisory appraisal)
	0	1	2	3	(1) Not demonstrated	(2) Shows aptitude	(3) Acceptable	(4) Superior	
1. Knowledge of and ability to utilize principles, methods, techniques, and systems of financial management.									
2. Ability to plan, direct and coordinate difficult and complex programs.									
3. Ability to develop, apply, and adjust financial plans and policies to attain overall agency objectives.									
4. Ability to select, develop, and supervise a subordinate staff.									
5. Knowledge, skill, and competence in: (a) Budgeting									
(b) Accounting									
(c) Financial Reporting									
(d) Statistical Analysis									
(e) Managerial Reporting									
(f) Program Evaluation									
(g) Program Planning									
(h) Management Engineering/Management Analysis									
(i) ADP-RAM or other Machine Systems									
(j) Internal Auditing									
(k) Other									
6. Ability to establish and maintain effective working relationships with all levels of key management officials.									
7. Ability to make presentations: (a) Oral									
(b) Written									
8. Ability to apply a high level of sound, independent judgment in the solution of financial problems and in the administration of a financial management program.									
9. Ability to acquire a broad knowledge of agency operating programs.									

Accounting Series, GS–5/15
Auditing Series, GS–511–5/15

DESCRIPTION OF WORK

Accountants and auditors perform professional work in any of several capacities depending upon the accounting system involved, the organizations and operating programs served, the financial data sought, and the needs of management. Accountants classify and evaluate financial data; record transactions in financial records; develop and install new accounting systems, revise existing accounting systems; and prepare and analyze financial statements, records and reports. Auditors examine accounts for the purpose of certifying or attesting that as of a certain date or for a stated period various financial statements fairly present the financial position of the activity audited in terms of assets, liabilities, net worth, and income and expenses. Auditors evaluate such matters as (a) the degree of compliance with laws, regulations and principles of sound financial management; (b) the effectiveness, economy, and efficiency of resource utilization and management systems; and (c) the extent to which desired results or benefits are being achieved. Audit emphasis includes evaluating internal controls to determine the reliability of reported results; and assuring that generally accepted accounting principles have been consistently applied by the activity audited.

BASIC REQUIREMENTS FOR ALL GRADES

Candidates for all grades must meet the requirements of paragraph A, B, or C below:

A. A full 4-year course of study in an accredited college or university which meets all of that institution's requirements for a bachelor's degree with an accounting major.

B. A full 4-year course of study in an accredited college or university that meets all requirements for a bachelor's degree and that included or was supplemented by at least 24 semester hours in accounting [1].

C. At least 4 years of experience in accounting, or an equivalent combination of accounting experience, college-level education, and training that provided professional accounting knowledge equivalent in type, scope, and thoroughness to that acquired through successful completion of a 4-year college curriculum in accounting as in A above. → The background of candidates who meet the requirements of this paragraph must also include one of the following: ←

1. Twenty-four semester hours in accounting or auditing courses of appropriate type and quality. Note: Resident or home-study academic courses conducted by a Federal agency or a nonaccredited institution that are determined to be fully equivalent to accounting and auditing courses in an accredited college may be accepted. (See Introduction to Handbook X–118, Part II, Section III, page 12.)
2. A certificate as Certified Public Accountant or a Certified Internal Auditor, obtained through written examination.
3. Recognized, well-established professional stature in accounting or auditing based on a combination of (a) successful experience in a variety of highly responsible accounting functions in positions equivalent to GS–12 or higher, and (b) significant documented contributions to the accounting or auditing profession through publications, leadership in professional organizations, development of new methods and techniques, or comparable achievements.
4. Completion of the requirements for a bachelor's or higher degree with major study in accounting, auditing or a related field which includes substantial course work in accounting or auditing, e.g., 15 semester hours, but which does

[1] Generally, for editorial convenience, the term "accounting" is used in lieu of "accounting and/or auditing." Similarly "accountant" should be interpreted, generally, as "accountants and/or auditors."

not fully satisfy the 24 semester hour requirement of paragraph A provided that (a) the candidate has successfully demonstrated the ability to perform work of the GS–12 or higher grade level in accounting, auditing or a related field, e.g., valuation engineering or financial institution examining; (b) a panel of at least two higher level professional accountants or auditors have determined that the candidate has demonstrated a good knowledge of accounting and of related and underlying fields that equals in breadth, depth, currency, and level of advancement that normally obtained with successfull completion of the 4-year course of study in paragraph A; and (c) except for literal nonconformance to the requirement of 24 semester hours in accounting, the candidate's education, training, and experience fully meet the specified requirements. (See Amendment of Educational Requirements on pages 15.02 to 16.05 in Introduction to Handbook X–118, Part II, Section III.) This provision is for in-service placement.

GS–5.—The basic requirements are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education, or an equivalent combination of both, in addition to meeting the basic requirements. This professional experience or graduate education must have been in or directly related to accounting or auditing or in a field closely related to the position to be filled. This experience and/or education, with pertinent self-study, must have equipped the candidate with the knowledge and ability to perform the work of the accounting or auditing profession at the level of the position to be filled.

1. Experience

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	Years
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below at least 6 months of the required experience must have been at a level of difficulty comparable to that of the next lower grade or 1 year comparable to the second lower grade in the Federal service. For grades GS–12 and above at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. Education

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above. This education must have been either in accounting and auditing or in directly related fields.

GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; or two full academic years of graduate education.

3. Combinations of professional experience and graduate education

Equivalent combinations of professional experience and graduate education of the type described above are acceptable at each grade. For example, 10 semester hours of graduate education and 8 months professional experience is qualifying for GS–7.

4. Alternate requirements

a. Superior academic achievement at the baccalaureate level or 1 year of student trainee experience in accounting or auditing is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the perti-

nent criteria in section III, part II, Instructions to Users, of this handbook must be met.

b. Technician experience: For positions at GS–7 only, candidates who have completed the required 24 semester hours in accounting and who have experience—in addition to that needed to satisfy the basic requirement for all positions—as an accounting technician equivalent to grade GS–5 or higher may have that experience credited for GS–7 on a month-for-month basis up to a maximum of 12 months.

SELECTIVE AND QUALITY RANKING FACTORS

In general, candidates who meet the "Basic Requirements For All Grades" are qualified for positions at the entrance and lower levels in any specialized branch of accounting such as cost, systems, staff, and auditing. For some specialized positions, candidates who possess specific job-related knowledges, skills, and/or abilities may be better qualified candidates than those who are only basically qualified. Therefore, specific knowledges, skills, and/or abilities will be used as quality ranking factors under justification that shows: (a) how the quality ranking factor is directly related to the duties and responsibilities of the position; and (b) why possession of the desired knowledge, skill and/or ability would predict superior performance.

For other specialized positions, only candidates who possess specific job-related knowledges, skills, and/or abilities may be qualified. For example, if an accounting position requires highly developed skill in internal auditing or an extensive knowledge of ADP systems, that skill or knowledge may be used as an "in-or-out" selective placement factor. Justification for selective placement factors must show: (a) how the selective factor is directly related to the duties and responsibilities of the position; and (b) why possession of the knowledges, skills, and/or abilities identified as selective factors are necessary for successful performance in the position.

The Office of Personnel Management Position-Classification Standard for the Accounting Series, GS–510, and the Auditing Series, GS–511 include a great deal of valuable information on the various specialized branches of accounting.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook should also be used.

BASIS OF RATING

No written test is required. Candidates will be rated on a scale of 100 on the extent and quality of their experience and training. Ratings will be based upon candidates' statements in their applications and upon any additional information that may be secured by the Office of Personnel Management.

DEFINITION OF PROFESSIONAL EXPERIENCE

The professional accounting experience required for grades GS–7 and above is defined as nonroutine accounting work that required and was characterized by (1) professional knowledge of accounting; (2) professional ability to apply such knowledge in business or governmental accounting; and (3) positive and continuing development of professional knowledge and ability. (See also "Distinguishing Professional from Nonprofessional Accounting Positions" published in April 1959 in the classification standards for the Accounting and Budget Group, GS–500.)

Professional knowledge of accounting is defined as (a) a thorough knowledge of the concepts, theories, principles and practices of general and cost accounting; public industrial and/or governmental accounting; auditing, taxation, budgeting and analysis of financial statements; and trends and current developments in the accounting profession in government, industry and public accounting firms; (b) an understanding of the legal principles that govern financial transactions and relationships in government or industry; and (c) a basic

foundation in related fields such as banking, mathematical analysis, statistics, automatic data processing systems and techniques, business organization, and the principles and processes of management.

Professional ability to apply accounting knowledge is defined as the ability to (a) apply fundamental and diversified professional accounting concepts, theories, and practices to achieve financial management objectives with versatility, judgment, and perception; (b) adapt and apply methods and techniques of related disciplines such as economics and statistical analysis; and (c) organize, analyze, interpret, and evaluate financial data in the solution of management and accounting problems.

Positive and continuing development of professional knowledge and ability is defined as an action program involving activities such as the following as appropriate to the circumstances:

(a) Developing new approaches, methods or techniques for the solution of problems in accounting or auditing;
(b) Formal or informal training and guidance on the job by specialists or more mature professionals;
(c) College-level academic study;
(d) Participations in seminars, conferences, and technical committees of professional societies and other organizations;
(e) Review and study of the professional literature of accounting and related fields;
(f) Publication of professional papers.

Professional work in accounting, like that of other professions, is marked by continuing personal effort to keep abreast of the advancing and changing discipline. Continuing education in accounting and related fields is an important element of full professional competence as an accountant which should be considered in evaluating the qualifications of candidates for professional accountant positions. Accounting technicians who desire to make the upward mobility transition to professional accountant must not only satisfy the essential requirement of 24 semester hours in accounting, but should plan on continued academic course work.

EDUCATION IN ACCOUNTING

Undergraduate Education

Most accounting majors consist of 24 semester hours of accounting courses that have easily recognizable titles such as elementary accounting, intermediate accounting, advanced accounting, auditing, Federal tax accounting, cost accounting, CPA problems, accounting systems, internal auditing, government accounting, accounting theory, accounting seminar, and the like. However, not all professional accounting courses have the words accounting or auditing in their titles. Courses entitled, for example, analysis of financial statements, business budgeting, cost analysis and control, investment analysis, and statement and report presentation and analysis are considered professional accounting courses when they: (a) have as a prerequisite one or more clearly identifiable professional accounting courses such as principles of accounting; and (b) are primarily concerned with the development, analysis, and presentation of financial data and/or the interpretation and evaluation of financial information and its application to management problems.

In general 30 semester hours, or 45 quarter hours constitute an academic year.

Graduate Education

Graduate education may have been either in accounting or in directly related fields. Fields directly related to accounting include, for example, business administration, finance, comptrollership, and management. Normally such study includes one or more courses in accounting.

The courses presented must have been directly related to the field of professional accounting and must demonstrably contribute to the knowledge, skills, and abilities required of professional accountants.

ACCEPTANCE OF TECHNICIAN EXPERIENCE

At grade GS–7, for competitive appointment and for inservice placement accounting technician experience at the grade GS–5 level and above may be accepted toward meeting the professional experience requirements as described on page 2 of this standard provided the candidate meets the basic requirements for all grades on page 1 of this standard.

At grade GS–9 and above, *for inservice placement only*, accounting technician experience may be accepted as equivalent to the professional accounting experience required for positions *at the same grade*, when all of the conditions described under the heading "Evaluation of Technician Experience for Professional Positions" in Part II, Section II of Handbook X–118, are met.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to safely and efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual, Chapter 930, Appendix A, Physical Standard for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Accounting Technician GS-4/9[1]

DESCRIPTION OF DUTIES

Accounting technicians perform nonprofessional work necessary to insure the effective operation of established accounting systems. They apply a basic understanding of accounting concepts and procedures in performing such functions as classifying accounting transactions; maintaining, balancing and reconciling accounting records; examining accounting records to verify accuracy; determining appropriate adjustments and special entries; preparing and verifying accounting statements and reports; and performing prescribed analyses of accounting data and reports. These functions may involve a narrow range of accounts or may encompass the entire accounting system of the activity, depending on the nature and level of assignments.

EXPERIENCE REQUIREMENTS

Except for the substitutions provided for below, candidates must have had the kind and amount of experience shown in the table and described in the statements immediately following.

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-4	2	0	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5
GS-8 and above	2	4	6

Note: For supervisory positions, see Qualification Standard, in pt. III of this handbook for "Supervisory Positions in General Schedule Occupations."

1. *General experience* is clerical work which has demonstrated arithmetic aptitude and ability, accuracy and attention to detail, and the ability to apply established procedures for recording and compiling data. Such work may have involved—

(a) maintaining various types of records requiring accuracy in selecting, posting, and consolidating pertinent data;
(b) coding, compiling, or verifying statistical data;
(c) making arithmetic computations, applying formulas or conversion tables, etc.;
(d) screening various types of documents to verify the accuracy of codes, amounts, or similar data in numeric form against related documents or guides;
(e) operating various calculating or posting machines provided this work included responsibility for verifying accuracy; or
(f) similar work which demonstrated the relevant abilities.

2. *Specialized experience* is work which required the candidate to acquire and apply a knowledge of established accounting procedures and techniques in the performance of such functions as—

(a) analyzing and classifying or recording transactions;
(b) balancing, reconciling, adjusting, or examining accounts;
(c) developing or verifying accounting data for reports, statements, and schedules; or
(d) performing prescribed analyses of accounting data.

Directly related specialized experience is defined as experience gained in the same specialized area of accounting technician work as the position for which application is made. This may involve either specialized types of accounts (e.g., cost accounts, financial inventory accounts, general ledger accounts) or specialized functions (e.g., reports, accounts examination).

The directly related experience requirements are:

(a) For positions at grade GS-5, no directly related experience is required.
(b) For positions at grade GS-6, at least *6 months* of the specialized experience must be directly related.

[1] The qualification standard for the General Administrative, Clerical, and Office Services Group, GS-300, Clerk, (various positions) GS-1/3, should be used for filling positions in the Accounting Technician Series at grades GS-3 and below.

(c) For positions at grades GS–7 and above, at least *1 year* of the specialized experience must be directly related.

3. *Quality of experience.*—For positions at any grade, the required amount of experience will not in itself be accepted as proof of qualification. The candidate's record of experience and training must show that he has the ability to perform the duties of the position.

In addition, candidates for any grade must have at least 1 year of experience at a level of difficulty comparable to the next lower grade or 2 years of experience at the level of difficulty comparable to the second lower grade in the Federal service.

SUBSTITUTIONS ALLOWED

1. Study successfully completed in a resident college, university, or junior college may be substituted for *general* experience on the basis of *one-half academic year* of study for *6 months* of experience provided it included at least 3 semester hours per year in the fields of bookkeeping or accounting.
2. Study successfully completed in a resident business or commercial school or other comparable institution above the high school level may be substituted for *general* experience on the basis of *one-half academic year* of study for *6 months* of experience provided such study included accounting or bookkeeping as well as other subjects such as business English, office machines, filing and indexing, office practices or business mathematics. No credit will be allowed for training which has been obtained only or primarily in the basic skills of shorthand or typing or refresher courses.
3. Study of the nature described in 1 and 2 above may be substituted for the *first year* of specialized experience on the basis of *1 academic year* of study for *6 months* of specialized experience.

Under these provisions a 2-year course of study of the above nature meets the experience requirements for grade GS–4 and a full 4-year course of study meets the experience requirements for grade GS–5.

Note:

"School above the high school level" means an educational institution (e.g., a business or commercial school or college, a junior college, or a college or university) for which high school graduation or the equivalent is prerequisite.

"An academic year" consists of approximately 36 weeks of full-time study, or 30 semester hours, or the equivalent.

"Full-time study" in the case of business and commercial schools is the equivalent of at least 20 classroom hours of instruction per week, plus necessary outside study. Part-time study is prorated on this basis also but is creditable only in amounts equivalent to one-half academic year or multiples thereof.

WRITTEN TEST

A written test of abilities necessary to learn and perform the duties of these positions is required for positions at grade GS–4. The test should be waived for inservice placement actions, but not for appointments outside the register.

BASIS OF RATING

Competitors for all positions will be rated on a scale of 100. Rankings are made:

1. For competitive appointments at GS–4: on the basis of the written test.
2. For competitive appointments above GS–4 and for inservice placement actions at all grades: on the basis of the extent and quality of experience and training relevant to the duties of the position.

INSERVICE PLACEMENT PROVISIONS

1. *Substitution for specialized experience*

Responsible work in closely related occupations which has demonstrated potential for advancement and aptitude for accounting technician work may be substituted for a *maximum of 1 year* of specialized experience. Experience

(TS 129)
November 1969
Reprinted without change
April 1978 (TS–165)

in related work (e.g., accounting clerical, payroll voucher examining, cash accounting, budget, cost estimating, work measurement, etc.) may be credited provided it involved—

(a) demonstrated analytical ability in interpreting and applying a body of regulations and procedures under varying conditions;

(b) substantial responsibilities for verifying the accuracy and completeness of data in source and supporting documents or reports and for tracing and correcting discrepancies; *and*

(c) reconciling records maintained with related accounting data *or* performing prescribed analyses of the records maintained (e.g., to reflect trends, fund status, actual vs. standard hours).

Work in related areas which does not fully meet the above conditions is creditable as *general* experience only.

2. *Waiver of directly related experience requirement*

The requirement for directly related experience may be waived under the following conditions:

(a) For lateral reassignments when:

(1) The candidate has had experience that provided a general familiarity with the work of the position for which he is being considered; *and*

(2) A review of the candidate's experience and performance discloses possession of the necessary skills and abilities, and evidences potential for successful performance of the work.

(b) For promotion actions, where it is clearly shown that:

(1) Despite the lack of directly related experience, the candidate's background gives positive evidence that he possessed to a superior degree the essential skills and abilities needed for the position; *and*

(2) The candidate has had experience that has provided a general familiarity with the work of the position for which he is being considered; *and*

(3) The overall evaluation of the candidate's background provides strong evidence that he can successfully perform the higher grade work without prolonged training.

3. *Suggestions for evaluating employees for in-service placement*

In evaluating candidates for in-service placement to accounting technician jobs, it is suggested that inquiries be made of former supervisors of the candidate to elicit detailed information concerning demonstrated abilities, type of work experience and past responsibilities.

Inquiries should develop information on:

(a) The kind and extent of knowledges of double entry accounting processes or of closely related recordkeeping techniques. (NOTE: The accounting and finance unit is not the only place where pertinent experience can be gained. Often the initial classification of accounting transactions and the maintenance of journals, registers or subsidiary ledgers is performed in other units which generate the transaction, such as a purchasing office, payroll office, etc.);

(b) The degree of responsibility for interpreting guidelines and procedures, and the relative degree of supervision; and

(c) Such personal characteristics and interests as—

- interest and aptitude in working with figures;
- ability to maintain a high level of accuracy in work requiring close attention to detail;
- interest in the purpose and effect of prescribed procedures; or
- initiative in questioning unusual actions or in obtaining information to support or verify questionable actions.

In ranking individuals, other things being equal, the greatest credit should be given to those with the greatest amount of directly related experience, and to those who have had the greatest responsibility and freedom from supervision. Extra credit may be given for a broader range of experience (in addition to any required directly related experience) when the broader experience will be of benefit in the position and if it gives evidence of greater potential for development. Extra credit may also be given for completion of correspondence courses or part-time study, not credited under educational substitution provisions, in accounting or bookkeeping.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2. In addition, applicants must possess emotional and mental stability.

Payroll Clerk GS-1/5

Payroll Technician GS-6

INTRODUCTION

The GS-500 Group standard applies to new hires at grade levels GS-4 through 6 from outside the Federal service into payroll positions. The GS-500 Group standard is based on length and quality of experience or educational requirements. In lieu of the Group standard, however, an alternative qualification standard which follows may be used for promotion, reassignment, or other inservice placement actions pertaining to civilian payroll positions.

The alternative standard is based on a "job element" approach. This is a way of deciding how much potential an applicant actually has *to do a* job—a way to match what the applicant can do against what the work calls for. The knowledges, skills, and abilities of the applicant are compared with the knowledges, skills, and abilities (called job elements) needed for success. If the applicant has the ability to do the work, he is considered eligible for the job.

Under this method, how or where the applicant gained his ability, or the length of time it took him to do so, are not as important as the fact that he has the required ability. It is aimed at finding out what the applicant can do, and has been used successfully by many agencies in filling jobs in other occupations.

The major steps of the job element method are:

- —to find out which elements are needed to do the job;
- —to decide, for each element, how the applicant can show that he has the ability to do the work; and
- —to decide, for each element, how much ability the applicant actually has.

The elements are selected after a thorough study of the work to be done—a process called "job analysis." This study will produce a list of job elements (such as those in the standard which follows) that are best to use in deciding which applicants are well suited for the job.

Employees and supervisors who know the job are then called upon to help set up a guide or "yardstick" for measuring ability in the elements. For each element, they decide the different ways in which an applicant might show that he has ability to do the work. They then group together, for each element, those ways that show "superior ability," those that show "average ability," etc.

The information about each applicant is matched against the "yardstick" to decide how much ability the applicant has in each element. Normally, employees who know the job help to make these comparisons. The sum of the values the applicant receives on each of the elements is an overall indication of how good he should be on the job.

When there are more applicants than jobs to be filled, some applicants with acceptable skills and abilities may not be selected. This does not mean they could not do the job. It just means their skills and abilities were not as good for the jobs to be filled as the skills and abilities of other applicants.

The useful features of this job technique for filling jobs are:

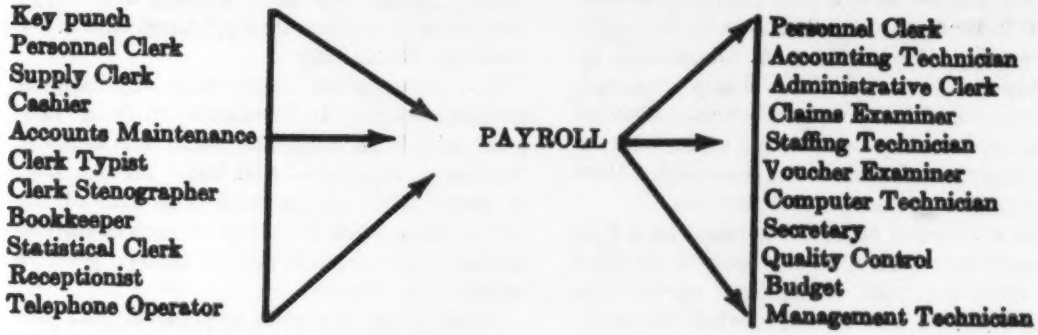
- —it is based on what jobs actually require;
- —it recognizes that many jobs have common elements, so people can transfer more readily from one job to another;
- —it avoids overreliance on tests, and misuse of tests, where these are not absolutely necessary;
- —it insures order and system in measuring previous experience and training;
- —it identifies training needs; and
- —it is fair and equitable.

The material in the standard which follows carries out the intent of the job element approach, but is designed for those personnel or subject-matter specialists who are trained in the actual rating processes.[1]

A job element approach for the payroll occupation should not, by itself, be expected to

[1] Those interested in futher discussion of the job-element method may refer to the Job Qualification System for Trades and Labor Occupations (Handbook X-118C), May 1969.

make possible reassignment or promotion into all other occupations to which payroll clerks and technicians aspire. However, by making a thorough job analysis and identifying job elements for other positions in related career ladders in any particular agency or location, training agreements may be set up to make such movement possible through the merit promotion program.[2] Examples of *some possible* career ladders in and out of the payroll occupation by use of such job analysis and training are listed below:



[2] See FPM Bulletin 271-14, dated March 31, 1970, Subject: Use of Training Agreements in Upward Mobility Programs.

ALTERNATIVE QUALIFICATION STANDARD FOR INSERVICE PLACEMENT
PAYROLL CLERK AND TECHNICIAN, GS-544-1/6

Job elements	Grade levels					
	GS-1	GS-2	GS-3	GS-4	GS-5	GS-6
A. Reliability and dependability	X	X	X	X	X	X
B. Ability to meet deadlines under pressure				X	X	X
C. Ability to get along with others				X	X	X
D. Ability to work rapidly and accurately with names, numbers, codes, and symbols		X See Note 1	X See Note 1	X	X	X
E. Analytical ability (Troubleshooting ability)				X	X	X
F. Knowledge of payroll operations (Screenout)				X See Note 2	X	X
G. Ability to do the work of the position without more than normal supervision (Screenout)	X	X	X	X See Note 2	X	X

NOTE 1: For GS-2 and 3, the 2 credit level in element D is potential for rapidly acquiring this ability.

NOTE 2: For GS-4, the minimum requirement (2 credit level) in element F, and, by implication, in the overall element G, is potential for rapidly acquiring knowledge of payroll operations. This potential may be demonstrated by sufficient strengths in other elements to compensate for a temporary deficiency in element F so that intensive on-the-job training of approximately 3-6 months' duration is judged to be sufficient to perform under normal supervision.

TECHNICAL NOTES TO USERS

1. The following scoring guide is suggested for inservice job element rating:

— If the candidate has demonstrated at least barely acceptable ability:

Rating	*Points*
Superior	4
Satisfactory	3
Barely Acceptable	2

—If the candidate has not shown at least barely acceptable ability:

Rating of potential	*Points*
Potentially Superior	3
Potentially Satisfactory	2
Weak, But of Some Value	1
Of No Value	0
I Cannot Judge	1½

2. The concept of a screenout element is vital to proper use of the job element approach. Screenout elements are used to initially screen in those applicants who appear to possess at least the minimally acceptable qualification requirements. In addition, they are used to eliminate those who are obviously not qualified.

In the rating process, a review is first made of all available information to give the rater an overall picture of the applicant's qualifications. On the basis of this review, the qualifications are evaluated first against the screenout element. Those applicants who appear to meet or exceed the two point value requirement are considered for further rating. Those who *obviously* do not meet the two point requirement are rated ineligible. For those who appear to be eligible, no final point value is assigned to the screenout at this time.

The potential eligibles are then rated against each element. The first element is evaluated by comparing it with the point value descriptions and examples for that element contained in the crediting plan. The final selection of a point value is made only after consideration of all available information about the element.

Point values are applied to the remaining elements in the same manner. The screenout element is considered last since this order of rating elements permits the rater to gain an overall picture of the applicant's qualifications and to relate the worth of all elements to the screenout. An applicant who fails to get 2 points on the screenout element after this thorough review is also rated ineligible.

Note that a person does not need to have 2 credits in every element to pass. He does, however, need to have at least 2 credits on each screenout element to pass. In rating a screenout element, the rater should take into account all the strengths and weaknesses of the applicant. If the applicant's weaknesses are such that the rater judges that these weaknesses affect the screenout element to the extent that the rating is below the barely acceptable level, then the applicant is ineligible.

3. The standard which follows benchmarks only the barely acceptable (2 credit) level for each element at each grade level. The elements are, however, scaled to indicate the kinds of qualifications which may exceed the 2 credit level and may, thus, be given higher credit in the rating and ranking process.
4. The screenout elements may *not* be deleted or the basic concepts of the 2 credit level changed.
5. Elements which are not covered in the basic standard may be required or related to superior accomplishment in particular positions. If this situation occurs, elements may be added to reflect the requirements of the position. Likewise, the levels of ability may be expanded to reflect other kinds of qualifying experience which raters find demonstrates possession of the element.
6. The standard includes sample questions at the end of each element. These questions may be used or adapted to solicit

information from candidates in merit promotion announcements, supplemental applications, etc.

7. In some agencies, it may be desirable to structure a check list or questionnaire to elicit information in an organized fashion from applicants in lieu of asking them to supply narrative statements. The sample questions at the end of each element will be helpful in constructing such a check list. However, a job analysis in the specific agency payroll operation may also give additional examples for the check list of ways in which applicants may meet the level requirements of the elements.
8. The job element rating sheet which is attached may be useful in application of the standard.
9. Even though the job element approach does not include time factors, there are still legal and regulatory time-in-grade requirements which apply. (These requirements are explained in Chapter 300 of the Federal Personnel Manual.)

SUGGESTED GUIDELINES FOR RATING JOB ELEMENTS FOR PAYROLL CLERK AND PAYROLL TECHNICIAN POSITIONS

*ELEMENT A.—RELIABILITY AND DEPENDABILITY**

Levels of ability	Crediting plan					
	GS-1	GS-2	GS-3	GS-4	GS-5	GS-6
Past work experience, educational, and community activities indicate a superior record of continuous attendance and dependable performance.						
Satisfactory record of continuous attendance and dependable performance.						
Satisfactory potential. No seriously derogatory information.	2	2	2	2	2	2
Cannot be depended upon to do tasks of the position because of unreliability.						

Sample Questions

Give any evidence to show you are a steady reliable worker. How is your work attendance record? How was your school attendance record? Cite other evidence to show you would be a dependable and punctual employee.

**Explanatory Note:* This element is important in the positions of payroll clerk because of the job conditions and requirements in a payroll office. Payroll clerks are usually responsible for maintaining a block of accounts. If they are regularly not at work and on time, another employee must take over and perform work, answer questions, etc., about both his own and the absent employee's block. Particularly in automated payroll operations, the time phasing of certain operations and input to the computer are done on a strict time schedule—e.g., to the half hour. The employee with a poor record of punctuality or unauthorized absence thus forces an intolerable burden on his coworkers in the payroll operation.

ELEMENT B.—ABILITY TO MEET DEADLINES UNDER PRESSURE

Levels of ability	Crediting plan					
	GS–1	GS–2	GS–3	GS–4	GS–5	GS–6
Superior in coordinating unit or own work to meet deadlines. Work is always ahead of schedule.						
Satisfactory in meeting frequent deadline dates for own work. Work is almost always on time.					2	2
Demonstrated ability to meet occasional deadline dates.				2		
No derogatory information.						
Cannot be depended upon to meet deadline dates. Becomes flustered under pressure.						

Sample Questions

Describe any experience you have had that shows you can meet deadlines under pressure in your own work, or in arranging for the work of other people. Show how often you have had to meet production schedules, and how much pressure there was to meet the requirements. Describe any organizational abilities you have exercised and any experience in establishing priorities. Would you be willing to work in a situation where you had to get a payroll out on a given day even if it meant working overtime and on a weekend?

ELEMENT C.—ABILITY TO GET ALONG WELL WITH OTHERS

Levels of ability	Crediting plan					
	GS–1	GS–2	GS–3	GS–4	GS–5	GS–6
Able to explain highly complex matters in a courteous and tactful manner so as to assure maximum understanding by employees.						
Ability to perform satisfactorily in situations involving contact with people to explain rules and regulations.					2	2
Demonstrated tact and courtesy in ordinary work, school situations or volunteer work.				2		
No derogatory and no positive information.						
Weak in tact and courtesy. Weak in oral expression.						

Sample Questions

Describe any training, work experience, school, community or organization memberships that apply to your ability to deal tactfully with other people and gain their cooperation and understanding in conferences, work situations, enforcing rules or policies, giving instructions, or information, etc.

*ELEMENT D.—ABILITY TO WORK RAPIDLY AND ACCURATELY WITH NUMBERS, NAMES, CODES, AND SYMBOLS**

Levels of ability	Crediting plan					
	GS-1	GS-2	GS-3	GS-4	GS-5	GS-6
Demonstrated ability to do superior work in positions requiring rapid and accurate manipulation with numbers, names, codes, and symbols. (This may be evidenced by a score of 70 or more on Test 800 or by school or work record.*)						
Ability to perform satisfactorily in positions requiring rapid and accurate manipulations with numbers, names, codes, and symbols. (This may be evidenced by a score of 60–69 on Test 800 or by school or work record.*)					2	2
Demonstrated ability to work accurately with names, numbers, codes, and symbols. (An accurate typist, statistical clerk, cashier, supply clerk, or EAM operator would usually be at at this level.)						
Potential to do the work of positions requiring the rapid and accurate manipulation of numbers, names, codes, and symbols. (This may be evidenced by a score of 40–59 on Test 800 or by school or work record.*)		2	2	2		
Formal schooling, training, and experience indicate a weakness in the ability to work rapidly and accurately to manipulate numbers, names, codes, and symbols.						

Sample Questions

Tell about any training, school, or work experience that applies to working rapidly and accurately with numbers, names, codes, and symbols. Specifically tell about any training you have had and how well you did in courses in bookkeeping, mathematics, coding or decoding, business arithmetic, accounting, or introduction to computer programing.

**Note:* A test may be used as one evidence of ability in this element. Other evidence should be considered as well. The test score should *not* be used as a screen-out. In addition, the test should not be used for inservice placement above the GS-3 level.

ELEMENT E.—ANALYTICAL ABILITY (Troubleshooting ability)

Levels of ability	Crediting plan					
	GS-1	GS-2	GS-3	GS-4	GS-5	GS-6
Superior ability to trace and correct errors involving understanding of subject-matter principles involved in systems as sophisticated as the most complicated computerized payroll systems; radar or missile or computer systems; complex business systems; cryptographic troubleshooting to unscramble machine errors or codes; etc.						
Potential to serve as expert troubleshooter; solving problems other competent journeymen are unable to handle.						2
Satisfactory ability to correct common errors involving multiple sources of error search in a system. (E.g., an accounting technician who reconciles accounts with controls from an accounts receivable ledger for services such as heat, electricity, telephone and guard services.)					2	
Able to correct common errors, but depends on supervisory assistance when system understanding is involved to a considerable extent.				2		
Able to find and correct simple errors in arithmetic.						

Sample Questions

What computerized payroll systems did you troubleshoot? Explain the extent to which you had to understand the entire payroll system in order to correct errors. Tell about the consequence to the payroll system if your work was incorrectly handled while troubleshooting. Have you ever done troubleshooting after other workers have been unable to locate a source of trouble or error? If so, tell about it.

If you have not had experience troubleshooting in payroll work, describe any other experience, training, schooling, etc., that you have had that involved troubleshooting, error correction, or reconciliation.

ELEMENT F.—ABILITY TO PERFORM PAYROLL OPERATIONS

Levels of ability	Crediting plan					
	GS–1	GS–2	GS–3	GS–4	GS–5	GS–6
Demonstrated superior ability to perform as a payroll technician in a highly complex computerized payroll system. (See GS–544–6 classification standard for normal job requirements.)						
Demonstrated satisfactory ability as a payroll clerk on tasks requiring a thorough knowledge of an agency payroll operation. (See GS–544–5 classification standard for further explanation of duties and responsibilities.)						Screen out 2
Demonstrated satisfactory ability to perform as a payroll clerk requiring knowledge of all commonly occurring transactions in employees' accounts. (See GS–544–4 classification standard for explanation of duties and responsibilities.)					Screen out 2 —OR—	
Demonstrated ability to perform tasks requiring a thorough knowledge of non-government or military payroll system.					Screen out 2	
Able to perform segmented tasks related to payroll operations, e.g., bonds, allotments, union dues, time and attendance duties. (See GS–544–3 classification standard.)						
Past record indicates transferable skills to payroll functions. Past training and experience indicate need for intensive on-the-job training in payroll operations. No adverse evidence that suggests ability is lacking to do payroll work if given the opportunity.				Screen out 2		

Sample Questions

Tell about your training and experience that shows you have ability in the following areas: preparation of payrolls, laws pertaining to payroll, computing and balancing payroll or control records, kinds of pay changes, and different types of pay plans. Tell about training or experience you have had with computerized systems. What are some of the more difficult and specialized payroll, personnel, or accounting procedures with which you are familiar?

ELEMENT G.—ABILITY TO DO WORK OF THE POSITION WITHOUT MORE THAN NORMAL SUPERVISION[e]

Levels of ability	Crediting plan					
	GS-1	GS-2	GS-3	GS-4	GS-5	GS-6
Demonstrated satisfactory ability to perform the more difficult tasks in the line of work on one's own initiative and under conditions of extreme independence.						Screen out 2
Demonstrated satisfactory ability to perform the common tasks in the line of work on one's own initiative with help or spot check by supervisor on more complex problems.					Screen out 2	
Potential to perform the common tasks in the line of work on one's own initiative with intermittent review.				Screen out 2 —OR—		
Demonstrated satisfactory ability to perform segmented tasks associated with the line of work with intermittent review.				Screen out 2		
Potential to be trained in payroll work as demonstrated by reliability and dependability and accuracy.			Screen out 2			
Potential demonstrated by reliability and dependability		Screen out 2				
Potential demonstrated by interest and motivation so that employee is likely to be reliable and dependable in payroll work (e.g., worker trainee). *Note:* A supervisor should be assigned a worker trainee only if the supervisor is willing and interested in helping the employee to master whatever problems he may have in adjusting to his new job.	Screen out 2					

Sample Questions

Tell about experience you have had that shows you can work on the basis of your own judgment. What kinds of work can you do by yourself without the help of a supervisor? What responsibilities have you been given in previous jobs. Give examples of the kinds of instructions your supervisor gives you when you start a task. How do you perform when you have to finish a job under pressures? Do you like to work with numbers? How good are you in working with numbers, names, codes, and symbols, e.g., in school, in a store, balancing a checkbook (tell where). What kinds of work have you done in which you had to be extremely accurate?

**Explanatory Note:* This element is defined as an overall evaluation of the applicant's qualifications for the *type* and *level* of position for which he is being rated. It considers the applicant's knowledges, skills, abilities and personal characteristics in relation to the *duties*, *responsibilities* and *type of controls over work of the position*. It involves deciding whether the past experience and training indicates he can work independently, will need some supervision and additional training or will need a lot of supervision and training to do the job. It considers such factors as his experience record, his performance report, supervisory appraisal (where good evidence on such factors can be obtained) and permits a second look at *all* other elements to determine if any of these factors would influence borderline decisions on which of two possible levels should be assigned. It permits screening out those applicants who obviously have no pertinent experience, training or potential for the type or level of work required. It also serves as a reminder to the rater that many of the individual elements are interrelated and must be considered and compared, mutually, to provide the most effective evaluation of a candidate's overall qualifications.

PAYROLL SERIES

Attachment No. 1

JOB ELEMENT RATING SHEET FOR INSERVICE PLACEMENT

Employee's Name	Organization
Present Job (*Title and Grade*)	Rated for (*Title and Grade*)

ABILITY OR JOB ELEMENTS NEEDED IN THE JOB TO BE FILLED See Crediting Plan for more information about each element	SECTION I IF EMPLOYEE HAS SHOWN AT LEAST BARELY ACCEPTABLE ABILITY, check how good he is in each element for the job to be filled.			SECTION II IF EMPLOYEE HAS NOT YET SHOWN ABILITY IN THE ELEMENT, estimate his potential for the job to be filled.					SOURCE OF INFORMATION (Observed on present job, tests, outside activities, awards, school records, etc.)	POINT VALUES
	SUPERIOR	SATISFACTORY	BARELY ACCEPTABLE	POTENTIALLY SUPERIOR	POTENTIALLY SATISFACTORY	WEAK, BUT OF SOME VALUE	OF NO VALUE	I CANNOT JUDGE		

Rater		Total Points :	
Title	Date	Rating :	
Reviewing Supervisor (as appropriate)		MEETS REQUIREMENTS	
Title	Date	☐ At least 2 points on the screen-out element	
Personnel Reviewer		☐ Total score—2 x number of elements or better	
Title	Date	DOES NOT MEET REQUIREMENTS	
SEE INSTRUCTIONS ON OTHER SIDE		☐ Less than 2 points on the screen-out element	
		☐ Total score less than 2 x number of elements	

This form may be modified and reproduced locally.

PET Format 2
(TS 139)
June 1971

UNITED STATES CIVIL SERVICE COMMISSION

PAYROLL SERIES

RATING FOR INSERVICE PLACEMENT

BEFORE YOU START TO RATE THE EMPLOYEE . . .

1. Read the crediting plan to be sure you understand the kinds of abilities that are needed in the job to be filled. Look at the examples for the levels of ability, e.g., a rating of satisfactory means that he is average in this ability *at the level required by the new job*.
2. Consider the employee's overall background. Rate him according to his ability to perform, regardless of how he came by his knowledge and skill. (Skills other than those needed in the new job should be considered insofar as they would help the employee perform the duties of the job.)
3. Emphasize quality and intensity of experience and training, not length. A lengthy experience record of low quality may prove only that an employee lacks ability to learn or progress.
4. In any particular element an employee may have proved his ability is at either a higher or a lower level than his present job.

HOW TO COMPLETE THE RATING SHEET

1. Use Section I if the employee has demonstrated at least barely acceptable ability in the element. Show his ability by checking in the proper column Superior, Satisfactory, or Barely Acceptable.
2. If the employee has not yet shown that he has at least barely acceptable ability, or he has been unsatisfactory, use Section II. Estimate his ability in each element for the job to be filled. Is he Potentially Superior; Potentially Satisfactory; Weak, But of Some Value; or is his ability Of No Value for the new job? Rate Potentially Superior only when you're quite certain that he will be a better bet than someone who has actually shown the ability but will never be more than barely acceptable.
3. If you have rated the employee Superior or Satisfactory on most of the abilities, but you do not have enough knowledge of a few abilities, consider rating these few abilities Potentially Satisfactory. Abilities are not separate and distinct, but emphasize different aspects of the job. Only if you cannot make a judgment at all and you cannot get additional information on one of the abilities should I Cannot Judge be checked.
4. Ability G, the last one on the sheet, summarizes your evaluation of the employee's experience and training as a whole. Can he be depended upon to do the duties of the job, or is he too weak in one or more aspects?

(TS 139)
June 1971

Budget Analyst, GS–5/15

Budget Officer, GS–11/15

Budget Examiner, GS–5/15 (OMB only)

DESCRIPTION OF WORK

Positions in this series perform, advise on, or supervise work in the phases or systems of budget administration currently in use in the Federal service. Such work primarily requires knowledge and skill in the application of related laws, regulations, policies, precedents, methods and techniques of budgeting.

Budget Analysts perform a segment, but less than the full range of the budget administration work done in the employing component or installation. The work requires a knowledge of the particular phase(s) of budgeting, analytical methods, processes, and procedures used in budgeting for assigned organizations, programs or activities. Budget analysts analyze the relative costs and benefits of alternate courses of budget and program action, check the propriety of obligations and expenditures, establish standard rates and charges to customers of industrially-funded activities, or develop budgetary policy and regulatory guidance.

Budget Officers are responsible for the full complement of budgetary operations which support the programs and personnel of the employing organizational component and level. At a minimum a budget officer's responsibilities include formulation and execution of the annual operating budget for the employing component. However, most budget officers also provide expert staff advice and assistance to managers by developing budget plans and estimates, interpreting budget laws, policies, and regulations, analyzing the cost effectiveness of program operations, and recommending alternate sources of program funding.

Budget Examiners are budgetary experts in the Office of Management and Budget (OMB) actively engaged in the review, analysis, and control of the budgetary operations of Federal agencies and departments. Budget examiners approve, disapprove, or adjust agency requests for funds in proposed and approved annual budgets and provide budgetary guidance to Federal agencies. Typically, budget examiners are responsible for the budgets and programs of assigned agencies or agency components. These positions are established only in OMB.

For a more complete description of the work performed by budget analysts, budget officers, and budget examiners, refer to the position classification standard for the Budget Analysis Series.

Part I.

EXPERIENCE REQUIREMENTS

Applicants must show that they have met the general and specialized experience requirements summarized in the following chart:

Grade	Specialized (years)	General (years)	Total (years)
GS–5	0	3	3
GS–7	1	3	4
GS–9	2	3	5
GS–11 and above	3	3	6

General experience is experience from which the applicant gained a general knowledge of financial and management principles and practices applicable to organizations. Experience in specialized fields which are closely related to budget analysis (e.g., management analysis, program analysis, accounting, or financial analysis), or excess specialized experience is acceptable as general experience.

Specialized experience is experience which provided specific knowledge and skill in the application of budgetary principles, practices, methods and procedures directly related to the work of the position to be filled. Such experience must have included substantially full-time work or its part-time equivalent in one or more of the following budgetary functions. For a description of the tasks, knowledges, and skills involved in these functions at the various grade levels, refer to the position classification standard for the Budget Analysis Series, GS–560.

—budget preparation, justification, and presentation;
—budget execution (i.e., monitoring and control of obligations and expenditures);
—development of budgetary policies, procedures, and guides;
—development, evaluation, or revision of budgetary control systems; or
—planning and budgeting for the operations of a working capital fund.

Such experience may have been gained as a specialist in budget work, as an operating official, or as a staff specialist in accounting, financial management, financial analysis, management analysis, program analysis, or other responsible analytical administrative or professional work that also provided a knowledge of the programs, organizational structure, and work processes of the employing organization.

QUALITY OF EXPERIENCE

For each grade, creditable experience must have equipped applicants with the knowledges and skills to perform fully the duties of the position being sought.

Applicants must demonstrate progressively responsible experience of a scope, quality, and degree such as to have equipped them with the capability to perform duties at the grade level of the position for which application is made. Typically, this is demonstrated by accomplishment of assignments of the difficulty and responsibility described in the position classification standard used to evaluate positions at the next lower grade in the normal line of promotion to the position being filled. (See 5 C.F.R. 300, Subpart F.)

Specialized experience which involved less than the majority of the candidate's time is to be prorated and credited on a month-for-month basis. In crediting experience gained in the Federal service, the grade of specialized experience may or may not be equivalent to the grade level of the position in which it was gained. Whenever possible, determination of the grade level of specialized experience should be based upon the classification evaluation of the budget work performed.

Part II.

SUBSTITUTION OF EDUCATION

Education may be substituted for the required experience as follows:

1. Undergraduate Education
   a. Successful completion of a four year course of study in an accredited college or university leading to a bachelor's degree or the equivalent is acceptable as meeting all requirements for the GS-5 level.
   b. Part-time undergraduate education of the type described above may be substituted at the rate of 1 year of education (or 30 semester hours) for 9 months of general experience.
2. Graduate Education
   a. Successful completion of one full academic year of relevant graduate education in business administration, economics, accounting, governmental budgeting, public administration, industrial engineering, political science, or an equally relevant field with comparable course work meets all requirements for grade GS-7.
   b. Successful completion of all requirements for a master's or equivalent degree, or 2 full years of graduate education which is in one of the fields described in paragraph (a) above meets all requirements for grade GS-9.
   c. For some positions, notably those which also require intensive knowledge of the Congressional budget process, economics, or statistics, completion of all requirements for a doctoral degree (DBA, DPA, or the equivalent) in a field directly related to the work of the position to be filled is accepted as qualifying for grade GS-11.

d. Part-time graduate education of the type described above may be substituted at the rate of 30 semester hours for 1 year of specialized experience, or 15 semester hours for ½ year of specialized experience.

3. Education may not be substituted for the required experience above the GS-11 level.

SUPERIOR ACADEMIC ACHIEVEMENT

Provisions of the Superior Academic Achievement Standard in Section III of Part II, Instructions to Users, of the X-118 Handbook are applicable at grade GS-7.

COMBINATIONS OF EDUCATION AND EXPERIENCE

Candidates for positions in this series may qualify on the basis of experience and/or education.

Part III.

SPECIAL PROVISIONS FOR INSERVICE PLACEMENT

Positions covered by this standard may be filled at the GS-5 and GS-7 levels without regard to experience or educational requirements of Part I of this standard by inservice lateral reassignment of employees from positions in the Budget Clerical and Assistance Series, GS-561, the Accounting Technician Series, GS-525, the General Accounting Clerical and Administrative Series, GS-501, or other series which provided comparable financial skills. Unless otherwise qualified under experience and educational requirements described in other parts of this standard, employees reassigned under this provision must serve at least 1 year in the position at the grade level at which reassigned before promotion within this series.

This provision is not to be used to promote an employee from a clerical, assistant, or technician occupation directly into a position in this series.

Part IV.

SUPERVISORY POSITIONS

In determining basic eligibility for supervisory positions, this standard is to be used in conjunction with the qualification standard for "Supervisory Positions in General Schedule Occupations," in Part III of the X-118 Handbook.

Part V.

BASIS OF RATING

Candidates for competitive appointment to all positions will be rated on the basis of their experience and/or education as it relates to the work or the position to be filled.

GUIDE FOR EVALUATING CANDIDATES

Positions at all grade levels in this series require:

1. Ability to effectively express ideas and recommendations orally and in writing;
2. Ability to reason in quantitative terms (e.g., in numerical concepts);
3. Analytical ability which includes the ability to conceptualize, generalize, and draw meaningful inferences and conclusions from financial and narrative data;
4. Ability to work effectively under pressure of tight time frames and rigid deadlines;
5. In addition, some positions in this series require skill in presenting and gaining the acceptance of budgetary requests, recommendations, and decisions during formal negotiations with fund granting and reviewing authorities.

For positions at the entry level (GS-5 and GS-7) credit should be given for experience and education which has demonstrated the candidate's ability to communicate effectively, both orally and in writing. These abilities may be gained through college courses such as creative writing, journalism, English literature, or public speaking, or through writing correspondence of

a business, financial, commercial, or administrative nature (e.g., audit reports).

Analytical ability of the type required in this series is often demonstrated through completion of college-level courses in logic, philosophy, economics, mathematics (e.g., probability and statistics), computer science, chemistry and physics. In ranking candidates, courses which included analytical methods and techniques commonly used in budget analysis may also be considered. While courses in business mathematics, financial management, statistics, economics, and accounting are highly desirable, they have not been specified as minimum educational requirements because to do so could possibly exclude some candidates who would otherwise be well-qualified to do the work.

In addition to evaluating the candidate's academic background, consideration should be given to such factors as general reasoning ability and ability to express thoughts clearly and concisely, both orally and in writing.

SELECTIVE PLACEMENT FACTORS

In filling positions at grades above the entry levels, selective factors may be appropriate for screening candidates. A selective factor is a knowledge, skill, or ability that is essential for satisfactory performance in a position, and represents an addition to the basic minimum requirements in this standard. If selective factors are used, the requirements must be job related, and need for them must be reflected in the official position description or other official communication. These will vary considerably, depending upon the nature of the position to be filled. Examples of selective factors supported by the position description or other evidence might include:

1. Knowledge of the particular method of budgeting used in the employing organization (e.g., stock fund budgeting).
2. Skill in the application of analytical techniques specific to assigned budgets and programs.
3. Knowledge of accounting in order to prepare the budget for an industrially funded organization.

QUALITY RANKING FACTORS

Candidates who meet or exceed the basic requirements, including any selective factors, may be ranked according to their degree of proficiency on quality ranking factors which have been identified for use. A quality ranking factor is a knowledge, skill, or ability which could be expected to significantly enhance performance in a position, but could not reasonably be considered necessary for satisfactory performance. Quality ranking factors may be used to distinguish the better qualified candidates from among those who meet all other requirements, including selective factors. Examples of quality ranking factors could include:

1. Knowledge of the programs and work processes of organizations for which budgetary services are provided.
2. Skill in developing and presenting briefings on budgetary matters.

For additional guidance concerning the identification and use of selective factors and quality ranking factors, refer to FPM Chapter 332, Subchapter 4, and Appendix B of that subchapter.

Some of the necessary analytical skills and program and budget knowledges may be acquired through service in positions in related occupational series, such as: Program Analysis, GS-345; Management Analysis, GS-343; Industrial Engineering, GS-896; Administrative Officer, GS-341; Accounting, GS-510; and Personnel Management, GS-201. In addition, many supervisory positions provide the kind of background experience required for the successful performance of budget analysis work.

Volunteer service (e.g., in charitable, religious, or service organizations) is to be counted toward meeting experience requirements of this standard.

Information used in rating candidates may be obtained from application forms and supporting papers, from associates and former employers, and from other relevant sources.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual, Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

FINANCIAL INSTITUTION EXAMINING SERIES[1]

Savings and Loan Examiner CS-5/15
Farm Credit Examiner CS-5/15
Investment Company Examiner CS-5/15
Savings and Loan Examining Officer CS-12/15
Farm Credit Examining Officer CS-12/15
Investment Company Examining Officer CS-12/15

DESCRIPTION OF WORK

Examiners in positions of these kinds make examinations and audits of savings and loan associations, farm credit associations, cooperative banks, investment institutions, national banks, or other financial institutions to determine financial condition, soundness of operations, compliance with regulatory laws and provisions, integrity of accounts, and other pertinent matters.

Examining Officers in positions of these kinds plan, manage, and direct the work of examiners of financial institutions.

Note: This standard may be used to fill positions under Schedule B, e.g., positions of Bank Examiner in the Treasury Department.

EXPERIENCE REQUIREMENTS

Except for the substitutions provided for below, applicants must have had experience of the kinds and amounts specified below:

Grade	Total (years)	General (years)	Specialized (years)
GS-6	3	3	
GS-7	4	3	1
GS-9	5	3	2
GS-11 and above	6	3	3

General experience

(1) Experience in positions requiring a thorough knowledge and the application of commercial accounting or auditing principles and practices (but less than full professional accounting knowledges), i.e., experience which has provided an understanding of debits and credits, the principles of journalizing, balance sheets, and operating statements; or

(2) Experience with a savings and loan association, savings or commercial bank, or other financial institution, requiring knowledge of accounting or auditing principles as applied to such institutions; or

(3) Any time-equivalent combination of (1) and (2) above.

Specialized experience—Type A (Usual requirement)

(4) Progressively responsible experience requiring a thorough knowledge and the application of accounting or auditing principles and practices (but less than full professional accounting knowledge) with a financial institution engaged in mortgage lending operations, with the mortgage loan department of an insurance company, or with a Federal agency making, insuring, guaranteeing, or supervising mortgage lending; *or*

(5) Progressively responsible experience in the examining or auditing of such financial institutions as savings and loan associations, savings or commercial banking institutions or trust companies, Federal Reserve Banks, farm credit associations, or Federal or State credit unions; *or*

★(6) For up to a *maximum of 2 years* of experience, professional accounting or auditing work which provided a broad knowledge of the application of accounting or auditing principles and practices; *or*★

(7) Any time-equivalent combination of (4), (5), and (6) above.

Specialized experience—Type B (Optional requirement)

(8) Experience which has provided a thorough knowledge of Federal and State laws applicable to the type of financial institution involved (e.g., savings and loan associations, Bank for Cooperatives, Federal Reserve Banks, savings or commercial banks, investment institutions, etc.) and of the operations and practices of such institutions.

[1] This standard supersedes the standard for this series which was issued in December 1968.

Specialized experience, Type B may be required for some positions but when required, this will not increase the total length of required experience. The specialized experience, Type B may be required, therefore, in lieu of part of the above stated requirement for either general experience or specialized experience, or both. For grade GS-7, specialized experience, Type B may be the sole specialized experience which is required.

Specialized experience, Type A in excess of that required may be substituted for general experience.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. Study successfully completed in a resident institution above the high school level may be substituted for general experience at the rate of 1 academic year of study for 9 months of experience provided that such study included an average of 6 semester hours (or the equivalent) in either one or two of the following, or directly related fields: accounting, banking, business administration, commercial or banking law, economics, or finance. For some positions 12 semester hours of this study must have been in accounting. A total of 4 academic years of study as described in this paragraph is qualifying for grade GS-5.

2. Full-time* graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For 1 year of specialized experience.*—One full academic year of graduate education in one of the following: accounting, banking, business administration, economics, finance, or other directly related fields. (This amount and kind of education meets all the requirements for grade GS-7.)

b. *For 2 years of specialized experience.*—Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education. which is in the fields described in paragraph "a" above. (This amount and kind of education meets all the requirements for grade GS-9.)

3. The Superior Academic Achievement Standard in section III of part II, Instructions to Users, of this handbook is applicable at grade GS-7.

4. Applicants may substitute the possession of a certificate as a Certified Public Accountant in a State, Territory, or the District of Columbia for all of the 3 years of general experience, provided the certificate number and date of issuance are clearly shown.

QUALITY OF EXPERIENCE

The applicant's experience must have been of a progressively responsible character and must demonstrate his ability to perform fully the duties of the position for which he is being considered. The prescribed lengths and levels of experience must be met, but meeting them does not of itself entitle one to an eligible rating unless the quality of the applicant's total background gives promise of satisfactory performance at the grade level for which the applicant is being considered.

For grades GS-11 and below, at least 6 months of the required specialized experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service, or 1 year must have been at a level of difficulty comparable at least to that of the second lower grade. For grades GS-12 and above, at least 1 year of the required specialized experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

*Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.

ADDITIONAL REQUIREMENTS

All applicants must demonstrate ability to meet and deal successfully and effectively with the public.

WRITTEN TEST

Applicants for grade GS-5 and GS-7 positions must pass an appropriate written test.

Applicants for all positions at grades GS-9 and above will not be required to take a written test.

The written test should be waived for all in-service placement actions. The written test may not be waived for appointments outside the register.

BASIS OF RATING

Applicants for GS-5 and GS-7 positions will be rated on the basis of their test scores and an evaluation of their education and experience.

Applicants for all positions at GS-9 and above will be rated on the basis of the quality, diversity, and extent of their experience and its relevance to the duties of the position to be filled. Such ratings will be based on the competitors' statements in their applications and on any additional evidence which is obtained.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 5. In addition, applicants must possess emotional and mental stability.

ACCOUNTING STUDENT TRAINEE SERIES

Student Trainee (Accounting) GS–2, 3, 4, 5

The qualification standard appearing under the General Student Trainee Series, GS–099, is to be used for ★competitive appointments to★ these positions.

★For appointments to student trainee positions under Schedule B, use the qualification standard filed under GS–899.★

GENERAL HEALTH SCIENCE SERIES[1]

General Health Science Series, GS-5/15

DESCRIPTION OF WORK

Persons in positions in this series advise on, administer, supervise, or perform research or other professional and scientific work which is specifically health-oriented in character, when the work is of such generalized, specialized or miscellaneous nature that the positions are not more appropriately classifiable in any of the existing series in this or any other group. The work requires a background of knowledges, skills and techniques gained from professional training in a health science or allied scientific field, but has no paramount, rigid or continuing requirement for the knowledges, skills and techniques characterizing any of the established series which reflect one or more of the academic disciplines or recognized professions. Such work may cut across and require understanding of scientific methods and techniques common to several recognized professional fields in the health, medical or allied sciences (e.g., work in the field of health research administration requiring knowledge of research methodology common to a number of different scientific fields); and/or the work may represent a new, emerging or miscellaneous professional occupational area of a health science not readily identifiable with established series.

BASIC REQUIREMENTS FOR ALL GRADES

For all grades of these positions, candidates must have successfully completed a full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in an academic field relating to the health sciences or allied sciences pertinent to the work of the position.

In addition to the education requirement above, candidates must have demonstrated the ability to perform successfully at the professional level in a health science or health-related field.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in a health science or other field of science directly related and applicable to the work of the position.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade:	*Minimum amount or kind of education in appropriate subject-matter fields*
GS-7	One full academic year of graduate education.

[1] This standard has been approved by the Administrator of Veterans' Affairs for use within the Department of Medicine and Surgery of the Veterans' Administration under the provisions of Section 4105, Title 38, U.S.C.

GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS-11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-11 level after a short orientation period.
GS-12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS-12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS-7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS-9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

QUALIFYING EXPERIENCE

For some positions at grade GS-12 and above: Professional work in grants administration is found in positions which are classifiable in a variety of respectively appropriate series. Some positions with such functions may be appropriately classifiable to this series. For such positions at grades GS-12 and above in this series, the following may be considered qualifying professional experience: experience gained in grants administration in occupational areas of science similar or related to the work of the position for which application is made, provided such experience involved professional judgment of a kind and level of difficulty and responsibility essential to successful performance in the position to be filled.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

RECENCY OF EXPERIENCE OR EDUCATION

For all positions of Scientist Administrator GS-11/15 and Grants Associate GS-11/14,

applicants must have had at least 1 year of qualifying experience or 1 academic year of qualifying education within the most recent 5 years.

WRITTEN TEST—BASIS OF RATING

No written test is required. Applicants for positions at these grades will be rated on a scale of 100, and will be evaluated on the basis of their education, training, experience, and personal qualifications in relation to the requirements of the specific positions for which they are being considered, as indicated by the information furnished in their application forms and such additional information as may be obtained through qualification inquiries to supervisors, associates and other references.

SELECTIVE PLACEMENT

For most positions in this series, selectivity in filling is required, in varying degree and kind, depending upon the specific demands for competence in a particular area. Selective placement may be used to fill such positions at grades GS-9 and above.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

Medical Officer (All Positions), GS–11/15

I. DESCRIPTION OF WORK

Medical officers advise on, administer, supervise, or perform professional and scientific work in one or more of the functional fields of medicine (clinical, preventive, research, disability evaluation, training, or administration) and in specialty fields of medicine (e.g., general practice, internal medicine, psychiatry, surgery, aviation medicine, occupational medicine, etc.). Duties of Medical Officer positions involve the performance of such functions as the following:

(1) Practice of medicine or direct service to patients (generally termed "clinical" medicine) involving performance of diagnostic, preventive, and therapeutic services to patients in hospitals, clinics, diagnostic centers, etc.; *or*

(2) Conduct of medical activities which are primarily of a preventive nature such as those in an occupational health program, aviation medicine program, etc.; *or*

(3) Evaluation of medical aspects of claims, which may arise under various Federal laws, for disability or death compensation or benefits; *or*

(4) Research and experimental work in various health problems, including causes, methods of prevention and control, and methods of treatment of disease; and research and experimental work in physical limitations and conditions other than disease; *or*

(5) Performance of a variety of medical work pertaining to food, drugs, cosmetics and devices (e.g., evaluation of new drug applications); *or*

(6) Administration of Federal-aid medical programs or other medical and health programs; *or*

(7) Direction of training activities for interns, residents, and inservice training of medical officers.

The difficulty of the work performed and the responsibility assumed will vary with the grade of the position, increasing progressively with increase of grade.

II. MINIMUM EDUCATIONAL REQUIREMENT FOR ALL POSITIONS

Applicants must meet one of the following requirements:

A. Graduation with degree of Doctor of Medicine from a U.S. or Canadian medical school listed as approved by the Council on Medical Education and Hospitals, American Medical Association in the list published for the year of the applicant's graduation.

B. Graduation with degree of Doctor of Medicine or equivalent degree from a medical school other than one covered by A above (including foreign schools), *provided* that his medical education and the medical knowledge he acquired therefrom are substantially comparable and equivalent to that of graduates of approved medical schools as described in A above. Such comparability may be evidenced in one of the following ways:

1. Permanent and full or unrestricted license to practice medicine and surgery in a State, the District of Columbia, the Commonwealth of Puerto Rico, or a territory of the United States; *or*

2. At least one year as an active duty commissioned medical officer in the Medical Corps of the U.S. Military Service or the U.S. Public Health Service, and has performed unrestricted duties including the treatment of patients; *or*

3. Certification in a specialty by an American Specialty Board approved by the Council on Medical Education and Hospitals of the American Medical Association; *or*

4. (a) Permanent certification by the Educational Council for Foreign Medical graduates in its American Medical Qualifying Examination; *or*

   (b) Having passed the full examination of the National Board of Medical Examiners.

C. Graduation with the degree of Doctor of Osteopathy from a school of osteopathy ap-

proved by the Bureau of Professional Education, Committee on Colleges of the American Osteopathic Association, *provided* the applicant has a permanent and full or unrestricted license to practice medicine and surgery in a State, the District of Columbia, the Commonwealth of Puerto Rico, or a territory of the United States.

III. LICENSURE REQUIREMENTS

A. For all positions in this series except strictly research positions and some positions in the General or Administration specializations where patient care responsibility is not involved, applicants must have a current permanent and full or unrestricted license to practice medicine and surgery in a State, District of Columbia, the Commonwealth of Puerto Rico, or a territory of the United States. (Applications will be accepted from persons who are not currently licensed; however, if they are selected for appointment to a position requiring a license, they must, unless they meet the provisions of C or D below, obtain a license before entering on duty. Applicants may be requested to furnish proof of current license to the appointing officer before they enter on duty.)

B. *Special Licensure Requirement for Positions in the District of Columbia Government.*—In accordance with the District of Columbia Statutes which require it, all Medical Officers appointed to positions in the District of Columbia Government for work within the geographical limits of the District of Columbia, must have a current permanent and full or unrestricted District of Columbia license to practice medicine and surgery.

C. *Waiver of Licensure Requirements.*—The above requirement of a current license may, except for positions in the District of Columbia, be waived for an applicant who, as a commissioned medical officer in the Medical Corps of the U.S. Military Service or the U.S. Public Health Service, had retired, resigned, or been furloughed, in good standing, after 10 or more years of active, full-time performance of unrestricted duties including the treatment of patients. If the agency elects not to waive the license, the agency may appoint applicants who meet the above criteria subject to their obtaining a license within one year.

D. *Appointments Pending Meeting License Requirements.*—An applicant who, as a commissioned medical officer in the Medical Corps of the U.S. Military Service or the U.S. Public Health Service, had retired, resigned, or been furloughed, in good standing, after one or more (but fewer than 10) years of active, full-time performance of unrestricted duties including the treatment of patients, may be appointed pending obtaining a license within one year after appointment. In no case may persons appointed pending licensure be retained beyond one year if they have not obtained the license.

IV. INTERNSHIP-RESIDENCY REQUIREMENT

(Applicable to positions other than research positions and positions in the Administration or General specializations where patient care responsibility is not involved.)

All applicants must have had training in their field of medicine as follows: →(However, as appropriate, the first year of a residency may be accepted in lieu of an internship.)←

A. *General Practice—GS-11/15*

Applicants must have completed an approved full rotating or mixed internship.

B. *Special Fields*[1]*—GS-12/15*

Anesthesiology, dermatology, family practice, internal medicine, obstetrics and gynecology (singly or combined), ophthalmology, otolaryngology, pathology, pediatrics, physical medicine and rehabilitation, psychiatry and neurology (singly or combined), radiology, surgery (various fields), urology:

Applicants must have completed an approved straight, rotating, or mixed internship and no less than one year of approved residency training in the appropriate specialty, or no less than one year of accredited preceptorship training in the appropriate specialty.

[1] Applicants in these specialties will also be considered to have met the training requirements if they have been certified in their medical specialty by an approved American specialty board in the specialty.

C. *Special Fields—GS-12/15*

Disability Evaluation, Aviation Medicine, Occupational Medicine or Maternal and Child Health:

Applicants must have completed an approved straight, rotating or mixed internship and the additional training or experience specified in V. below for such positions.

V. ADDITIONAL TRAINING AND/OR EXPERIENCE

A. The following requirements apply to all positions in the functional specialization of Clinical, and also in the functional specialization of Training, and are in addition to the minimum educational, licensure, and internship requirements which qualify for GS-11 in General Practice. The first year of approved residency or accredited preceptorship training is a basic requirement for GS-12 in the special fields, but may also be counted as part of the longer residencies, or time-equivalent combinations specified below as qualifying for higher grades.

1. *General practice*

GS-12 a. Completion of 1 year of approved residency or 1 year of experience of an appropriate quality level in general practice; *or*

b. Completion of an approved internship as outlined above, ★within the past 2 years★ *provided* the applicant has demonstrated superior achievement and ability during internship.

GS-13 a. Completion of 3 years of experience of an appropriate quality level or 3 years of approved residency, or a combination of both in general practice; *or*

b. Superior achievement and ability as an intern within the past 3 years, and subsequent 2 years of professional work experience, *provided* that at least 1 year of the experience was equivalent to GS-12 in the Federal service.

★c. Superior achievement and ability as an intern within the past 3 years, and subsequent completion of 2 years of approved residency training in general practice.★

GS-14 In addition to the requirements for GS-13, 1 year of experience in general practice of an appropriate quality level.

GS-15 In addition to the requirements for GS-13, 2 years of experience in general practice of an appropriate quality level.

2. *All other fields*

GS-13 a. Completion of an approved 3-year residency or accredited preceptorship training in the appropriate specialty, or a combination of such training with experience of an appropriate quality level in the specialty, the combination totaling 3 years and including at least 1 year of approved residency or accredited preceptorship training; *or*

b. Completion of an approved 2-year residency in a specialty where the 2 years represent the formal training requirements for certification by an approved American specialty board, in the appropriate specialty *and* the applicant has demonstrated superior achievement and ability during the residency.

GS-14 a. Completion of an approved 4-year residency or accredited preceptorship training in the appropriate specialty, or a combination of such training with experience of an appropriate quality level in the specialty, the combination totaling 4 years and including at least 1 year of approved residency or accred-

ited preceptorship training in the specialty; *or*

b. Persons who have superior ability and achievement as outlined at GS–13 above and at least 1 year of subsequent work experience of appropriate level in the specialty; *or*

c. Completion of an approved 3-year residency in a specialty where the 3 years represent the formal training requirements for certification by an approved American specialty board in the appropriate specialty, and the applicant has demonstrated superior achievement and ability during the residency.

GS–15 a. Certification by an American specialty board in the appropriate specialty, or 5 years of approved residency or accredited preceptorship training in the appropriate specialty, or a combination of such training with experience of an appropriate quality level in the specialty, the combination totaling 5 years and including at least 1 year of approved residency or accredited preceptorship training; *or*

b. Persons who have superior achievement and ability as outlined at GS–14 above and at least 1 year of subsequent work experience of appropriate level in the specialty.

B. *Disability Evaluation, GS–12/15*

In addition to meeting the minimum education, licensure and internship requirements listed above in II, III, and IV, applicants must have the training and experience specified below:

GS–12: Completion of 1 year of approved residency training, or 1 year of experience of an appropriate quality level in clinical or other medical work, either general or specialized, which has provided the applicant with knowledges, skills, and abilities in a field of medicine which is appropriate to the work of these positions. For example, residency training or experience in general practice, internal medicine, psychiatry, neurology, or general surgery.

GS–13: Requirements as outlined at GS–12 and, in addition, 2 years of training or experience of an appropriate quality level in clinical or other medical work, either general or specialized, of which at least 1 year of experience must have been in a disability evaluation program, either in a Federal or State agency or in industry.

GS–14: Requirements as outlined at GS–12 and, in addition, 3 years of training or experience of an appropriate quality level in clinical or other medical work, either general or specialized, of which at least 1 year must have been in a disability evaluation program, either in a Federal or State agency or in industry.

GS–15: Requirements as outlined at GS–12 and, in addition, 4 years of progressively responsible experience as a medical officer of which at least 2 years must have been in a disability evaluation program, either in a Federal or State agency or in industry.

Nonqualifying Training or Experience

Residency training or experience in clinical or other medical work which has not provided the applicant with knowledges, skills, and abilities of a field of medicine which is appropriate to the work of these positions in not qualifying. For example, training or experience in pediatrics or obstetrics would not be qualifying.

Note: Positions at GS–13, GS–14, and GS–15 may involve evaluation of cases or development of medical

guides and agency disability program policies which fall primarily within a recognized medical specialization, such as internal medicine, general surgery, psychiatry, neurology, etc. For such positions, candidates will be selected whose medical training and experience show appropriate specialization. For this purpose, general practice will be recognized as a specialty for positions which include responsibility for formulating disability rating schedules for disability rating policy. For such positions, the total years of residency or experience must meet the length and quality level shown above but no experience in disability evaluation is required. Certification by an approved American specialty board in a specialty appropriate to the positions will meet the training and experience requirements for GS-15.

C. *Aviation Medicine, GS-12/15*

In addition to the minimum education, licensure and internship requirements listed above in II, III, and IV, all applicants must show the additional experience specified below:

GS-12 1. Successful completion of a basic course in Aviation Medicine in the U.S. Military Service and, in addition, sufficient experience in Aviation Medicine so that their combined training and experience totals 1 year; *or*

2. One year of approved training or of experience of an appropriate quality level in Aviation Medicine.

GS-13 Three years of appropriate approved residency training, of graduate education, or of experience of an appropriate quality level, or a combination of these, which has included at least 1 year in Aviation Medicine.

GS-14 1. Completion of an approved 3-year residency in Aviation Medicine *and* superior achievement during the residency; *or*

2. Four years of appropriate residency training, of graduate education, or of experience of an appropriate quality level, or a combination of the above, which has included at least 1 year in Aviation Medicine.

GS-15 1. Certification in Aviation Medicine by an approved American specialty board.

2. Five years of appropriate approved residency training, graduate education, or experience of an appropriate quality level, or any combination of these, which has included at least 2 years in Aviation Medicine.

3. Persons who have superior ability and achievement as outlined at GS-14 above and at least 1 year of subsequent work experience of appropriate level in the specialty of Aviation Medicine.

Note: Approved residency training, graduate education or professional experience in medicine which is appropriate for the field of Aviation Medicine is that which has provided the applicant with many of the knowledges, skills, and abilities required in Aviation Medicine. For example, approved residency training or experience in internal medicine, pulmonary disease, cardiovascular diseases, general practice, occupational medicine, etc., would be appropriate.

D. *Occupational Medicine, GS-12/15*

In addition to meeting the minimum education, licensure, and internship requirements listed above in II, III, and IV, applicants must have the training and experience specified below:

GS-12 1. Completion of first-year approved training in preventive medicine; *or*

2. One year of supervised experience under a physician trained or experienced in Occupational Medicine in the practice of Occupational Medicine in either an industrial or office-type establishment where the experience provided on-the-job training and participation in the preventive aspects of Occupational Medicine.

GS-13 1. Completion of a 3-year approved residency in preventive medicine; *or*

2. Three years of appropriate approved residency training, or experience of an appropriate quality or a combination of these, which has included at least 1 year in preventive medicine.

GS-14 1. Completion of the third-year of approved residency in Occupational Medicine, with demonstrated superior ability and achievement during that training; *or*

2. Four years of appropriate approved residency training or experience of appropriate quality level, or a combination of training and experience, which has included at least 1 year in Occupational Medicine.

GS-15 1. Certification in Occupational Medicine by an approved American specialty board; *or*

2. Five years of appropriate approved residency training, graduate education, or experience of an appropriate quality level, or a combination of these which must have included at least 2 years in Occupational Medicine; *or*

3. Demonstrated superior ability and achievement through a 3-year residency, as outlined at GS-14 above, and at least 1 year of subsequent work experience of appropriate level in Occupational Medicine.

Note: Residency training or professional experience in medicine which is appropriate for the field of Occupational Medicine is that which has provided the applicant with many of the knowledges, skills, and abilities required in Occupational Medicine. For example, approved residency training or experience in general practice, internal medicine, surgery, pathology, dermatology, radiology, physical medicine and rehabilitation, etc., would be appropriate.

E. *Maternal and Child Health, GS-12/15*

In addition to the minimum education, licensure and internship requirements listed above in II, III, and IV, all applicants must show the additional training or experience specified below:

GS-12 1. One year of experience of an appropriate quality level in Maternal and Child Health; *or*

2. One year of approved residency training, graduate medical education, or experience of an appropriate quality level in an appropriate field of medicine.

GS-13 1. Three years of experience of an appropriate quality level in Maternal and Child Health; *or*

2. Three years of approved residency training, graduate education, or experience of an appropriate quality level in an appropriate field of medicine; *or*

3. Any combination of 1 and 2, above.

GS-14 In addition to requirements at GS-13, 1 year of experience of an appropriate quality level in Maternal and Child Health.

GS-15 In addition to requirements at GS-13, 2 years of experience of an appropriate quality level in Maternal and Child Health.

Note: Approved residency training, graduate education, or professional experience in medicine which is appropriate for the field of Maternal and Child Health is that which has provided the applicant with many of the knowledges, skills, and abilities required in maternal and child health. For example, approved residency training, graduate education, or experience in pediatrics, obstetrics, or in any field of preventive medicine would be appropriate.

VI. RESEARCH MEDICAL OFFICER POSITIONS

Medical officers in this functional specialization perform, supervise, or direct basic and applied research in medicine when the research does not involve patient care responsibility. Positions involving performance of work in research in combination with performance of work in clinical or other functional specializations are covered in standards for those functional specializations.

Since patient care responsibility is not involved, licensure is not a mandatory requirement for applicants for positions in this functional specialization, except for those applicants who meet the minimum educational requirement only under a provision which includes a licensure clause.

Because research specializations are so varied, and frequently so individualized that predetermined groupings serve little purpose, certifications to research positions will be based on a selective matching of the qualifications of candidates with the requirements of specific positions.

Education and experience requirements

GS–11 The minimum educational requirement (Section II above) is qualifying, and no additional education, training or experience is required. However, applicants must have evidenced interest in and aptitude for medical research work during medical school, fellowships with opportunities for research during summer, etc.

GS–12 a. One year of medical research experience that has demonstrated the interest and ability to perform research work; *or*

b. One year of approved residency training or accredited preceptorship training, during which the applicant has demonstrated the interest and potential ability to perform research work; *or*

c. One year of medical fellowship training during which the applicant has demonstrated the interest and ability to perform research work; *or*

d. The successful completion of all requirements for the master's degree or 1 year of postgraduate study in an accredited college or university in a field of science directly related to medicine (e.g., pathology, pharmacology, physiology, microbiology, biochemistry, zoology, etc.) when it is closely allied to the work of the position for which the applicant is being considered.

GS–13 a. The successful completion of all requirements for the Ph. D. degree, including the dissertation, in an accredited college or university in a field of science directly related to medicine (e.g., pathology, pharmacology, physiology, microbiology, biochemistry, zoology, etc.) when it is closely allied to the work of the position for which the applicant is being considered; *or*

b. In addition to the requirements for GS–12, 2 additional years of approved residency training or fellowship training, or medical research experience, which has demonstrated the applicant's ability to perform independent major medical research.

GS–14 In addition to the requirements for GS–13, 1 additional year of medical research experience that has demonstrated the applicant's ability to perform significant medical research, which requires a comprehensive knowledge of a field of medical science, and outstanding professional competence in the field.

GS–15 In addition to the requirements for GS–14, 1 additional year of medical research experience which has demonstrated outstanding leadership in the particular field involved.

VII. General, administration, and other positions not appropriately covered by the specific standards given above

Because of the variety of types of jobs which may be included in the designation "General" or "Administration," specific kinds of postgraduate training are not specified. A similar

situation may exist with respect to a few other positions for which specific standards are not provided. In such cases the training and experience presented by each applicant is evaluated individually in the light of requirements established for other jobs covered by these standards and in terms of the special requirements of the jobs to be filled.

VIII. General provisions

A. *Use of terms*

1. *Approved internship.*—This is training in a hospital or other institution approved by the Council on Medical Education and Hospitals of the American Medical Association or by the Bureau of Professional Education, Committee on Hospitals of the American Osteopathic Association for internship training.
2. *Approved residency.*—This is training in a hospital or other institution approved by the Council on Medical Education and Hospitals of the American Medical Association or by the Bureau of Professional Education, Committee on Hospitals of the American Osteopathic Association for training in the specialty.
3. *Internships and residencies.*—The 9-month wartime approved internships and residencies during the period from December 31, 1942 to July 1, 1947, will be accepted as the equivalent of 1 year.
4. *Accredited preceptorship training.*—Preceptorship training is training under the direction of an individual physician who is recognized in the specialty concerned. Such training is not necessarily obtained in the hospital setting. In order to be accredited, applicants must furnish a certificate of acceptance by an approved American specialty board in the specialty concerned.
5. *An approved American specialty board* is one which has been approved for the particular specialty by the Council on Medical Education and Hospitals of the American Medical Association or by the Bureau of Professional Education, Advisory Board for Osteopathic Specialists of the American Osteopathic Association.

★6. *Superior achievement and ability* is defined as that demonstrated by an intern or resident who completed his training within the preceding 2 years (or 3 years in the case of candidates who combined quality internship or residency with subsequent practice or further residency training for eligibility), and who, on the basis of total evaluation, would fall into approximately the upper half of all interns or residents in his specialty field.★

B. *Quality of training and experience*

In addition to meeting the requirements set forth above for education, training, licensure, and length and kinds of experience, applicants must present training and experience of the quality described below. Applicants whose training and experience do not meet the quality requirements, even though they meet all of the other requirements, will not be eligible for appointment.

The training and/or experience must have been progressive and responsible, and must have demonstrated that the applicant has a good knowledge of current principles, practices, methods, and techniques in his field of medicine.

The experience for clinical positions and for positions in the various fields of preventive medicine must have provided the applicant with knowledges, skills, and abilities equivalent to those which he would have acquired in the same amount of time in approved residency training in the appropriate specialty.

For positions at grades GS-13 and above, 1 year of the required experience in the appropriate specialty must have been at a level of difficulty and responsibility equivalent to that of the grade in the Federal service next below the grade for which the applicant is being considered.

The quality of training or experience is evaluated by such criteria as: (1) complexity of cases or medical problems and degree of respon-

sibility in connection with them, (2) level of professional teaching or management responsibilities, (3) extent of formal education and training, (4) degree to which consulted by colleagues in his field of medicine, and (5) quality of publications and writing in his field of medicine.

Teaching experience is directly appropriate for positions in the functional specialization of teaching and training. For other specializations, postgraduate teaching experience in an approved school of medicine, in a school of public health or in the direction of an approved residency or of a fellowship training program, may be accepted on a year-for-year basis toward meeting the experience requirements for positions in functional specializations for which it is appropriate. For positions in the research functional specialization this experience must have included concurrent conduct of or direction of substantial research activity at a level of difficulty and complexity appropriate for the grade.

For administrative positions applicants must have experience which demonstrates the ability or potential to administer a medical program or a major segment of a medical program.

Supervisory →positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

C. *Extra credit for creative research contributions for positions in the research specialization and for clinical or other positions which also involve substantial responsibility for clinical investigations or basic or applied research*

Applicants who show positive evidence during training or experience that they have performed highly creative or outstanding research, which has led or can lead to major advances in a specific area of research, may be given extra credit on this basis for positions which involve substantial responsibility for clinical investigations or basic or applied research. Therefore, applicants who meet the requirements for GS-13 and GS-14, and who also meet this criterion, may be rated eligible for the next higher grade than that for which they would normally be eligible. However, an applicant who has been given credit toward a higher grade on the basis of the superior achievement and ability provision cannot become eligible for a still higher grade based on this criterion.

To receive this credit the work must have been creative in the sense that it developed a basic principle, concept, method, approach, or technique (or provided a body of basic information) which opened the way for major advances in medicine or within a field of medicine by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of the medical science in a major area.

D. *Qualifications inquiries*

In order to obtain information that the applicant possesses high professional and personal qualifications, confidential inquiries, including contacts with superiors and associates, may be made.

E. *Interviews*

Applicants who meet the education, training, experience and other requirements may be required to appear for an interview. The purpose of the interview is to observe and evaluate personal characteristics and qualifications which are essential to the successful performance of the duties of the position. If the applicant does not demonstrate these qualities, he may not be offered appointment.

IX. SELECTIVE CERTIFICATION, GS-11/15

The following is in addition to other selective certification provisions covered elsewhere in the standard.

Since the background and approach to patient care of the physician (D.O.) differs somewhat from that of the physician (M.D.), some positions will require the specific training and approach of physician, D.O., or of the physician, M.D. For such positions, only those eligibles

who have the degree appropriate to the specific position to be filled will be considered.

X. Basis of rating

Applicants will not be required to report for a written test but will be rated on a scale of 100, based an an evaluation of their personal and professional qualifications which are relevant to the duties of the position. Such ratings will be based upon the applicant's statements in his application and upon any additional information secured, including that secured by inquiries made of his superiors, associates, and references regarding his training and experience record. Evidence of less than adequate quality of training and experience, of unsatisfactory work performance, or of the lack of high personal qualities will result in an ineligible rating.

XI. Physical requirements

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

XII. Special provisions for noncompetitive actions

A. *Noncompetitive movement of Medical Officers from GS–12 to GS–13*

Because of the 2-year increment in experience or training requirements between GS–12 and GS–13, the following provision is incorporated in the standards to be applied only when the position of a GS–12 medical officer has been re-evaluated as a GS–13 because of the effect of the incumbent on his job.

Whenever such a position warrants in all respects classification to grade GS–13, and the incumbent has completed 1 year of the required 2 years of experience at grade GS–12, he may be promoted to grade GS–13 provided the evaluation of the 1 year of GS–12 experience meets the criteria for superior achievement and ability as used to measure quality 2-year residents entering at grade GS–13. This evaluation should be made by supervisory personnel on the same form as used for quality residents, and should measure the same elements, as demonstrated through performance on the job, that are measured for quality residents as demonstrated through their performance in training. A positive finding must be made that the incumbent possesses the same degree of superior achievement and ability as the quality 2-year resident.

In noncompetitive actions, it is suggested that agencies use the qualifications inquiry form to obtain the detailed information needed to evaluate medical officers for promotion.

B. *Waiver of the current licensure requirements for positions in the Disability Evaluation functional specialization*

In noncompetitive actions involving position changes, transfers, and reinstatements of employees who are now serving or who have served in disability evaluation, the current licensure requirement may be waived.

(TS 77)
September 1963

Reprinted without change
December 1975 (TS 156)

Physician's Assistant GS-7/11

DESCRIPTION OF WORK

Physician's Assistants help physicians by providing diagnostic and therapeutic medical care and services under the physician's supervision. The work requires knowledge of specific observation and examination procedures, and ability to perform designated diagnostic and therapeutic tasks. The work does not include the full scope of interpretation of medical findings requiring the professional background of the licensed physician.

In clinics or during hospital rounds, physician's assistants assist in the observation and evaluation of patients by performing such duties as taking case histories, conducting physical examinations, and ordering laboratory studies. As directed by a physician, physician's assistants carry out special procedures such as applying and removing casts, performing lumbar punctures, or suturing minor lacerations.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

For any grade, the candidate's experience, training, and education must have equipped him with the knowledge and ability to perform fully the work of the position for which he is being considered. The required amount of experience and education will not in itself be accepted as proof of qualification for a given grade level.

Requirements for GS-7

Candidates for positions at GS-7 must meet requirements (1) and (2) below:

(1) A broad background of knowledge of the medical environment, practices, and procedures such as would be acquired by a bachelor's degree in a health care occupation such as nursing, medical technology, or physical therapy or by 3 years of responsible and progressive health care experience such as medical corpsman, nursing assistant, or medical technician, *and*

(2) Successful completion of a course of study of at least 12 months, including clinical training or preceptorship, specifically designed for professional-caliber physician's assistants in that it provided the candidate with the knowledge and ability to take a detailed medical history, to conduct a physical examination, to follow observation procedures, to order and perform diagnostic and therapeutic tasks, and to exercise a degree of judgment in integrating and interpreting findings on the basis of general medical knowledge; or equivalent education and training.

The course of study or training must be approved by a nationally-recognized professional medical body such as the American Medical Association or the Association of American Medical Colleges, or by a panel of physicians established by a Federal agency for this purpose.

Requirements for GS-9 and GS-11

In addition to the requirements for GS-7, the following amounts of pertinent professional-caliber experience comparable to the work of a physician's assistant are required for grades GS-9 and GS-11:

---

[1] This is a new occupation for the performance of professional caliber work heretofore performed by physicians. The occupation is largely exploratory and experimental in character at this time. Accordingly, this qualification standard has been issued on an interim basis pending further development of the occupation. We plan early revision of this standard including provision at GS-5 for candidates who have completed recently-initiated Physician's Assistant programs leading to a bachelor's degree.

[2] This standard has been approved by the Administrator of Veterans' Affairs for use within the Department of Medicine and Surgery of the Veterans' Administration under the provisions of section 4105, title 38, U.S.C.

Grade	Minimum amount of experience (years)
GS–9	1
GS–11	2

The required education, training, and experience must have demonstrated the ability to perform professional-caliber medical work as a physician's assistant with minimal supervision, including the exercise of a degree of judgment in integrating and interpreting diagnostic findings and in determining the need for referral to a physician.

For all grades, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service.

Acceptance of professional medical education

Candidates who have completed 3 full years of a curriculum in an accredited medical school leading to the doctor of medicine or doctor of osteopathy degree may be rated eligible at GS–9.

Candidates who have completed the requirements for the degree of doctor of medicine or osteopathy but who lack licensure to practice medicine in the United States, may be rated eligible at GS–11.

SUPERVISORY POSITIONS

For supervisory positions, see the qualifications standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

SELECTIVE PLACEMENT

Some positions demand specific competence in a particular specialty, e.g., pediatrics, radiology, or surgery. For such positions, consideration may be limited to those candidates whose records show evidence of the required knowledges, abilities, skills, and personal characteristics.

BASIS OF RATING

Candidates for all positions will be rated on the quality and extent of experience, education, or training in relationship to the knowledges and abilities required to perform the duties of the positions. Such ratings will be based upon candidates, statements in their applications and all available evidence concerning the quality and scope of their knowledge and ability including the candidate's education, experience, training, avocations, and personal characteristics.

REQUIRED KNOWLEDGES AND ABILITIES

Candidates will be rated on the degree to which they possess the knowledges and abilities of the kinds listed below, as appropriate to the grade level:

1. Ability to identify a medical problem and determine appropriate action to meet the problem, including referral to a physician.
2. Knowledge and understanding of the environment, principles, ethics, and special human relationships in the field of medicine.
3. Knowledge of the medical, biological, and physical sciences related to the applicable area of medicine.
4. Knowledge of and ability to perform specified diagnostic and therapeutic practices and procedures.
5. Ability to work responsibly with physicians and other members of the medical team, and to deal effectively with patients.
6. Ability to communicate effectively, both orally and in writing.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, candidates must possess emotional and mental stability.

NURSE ANESTHETIST SERIES[1]

Nurse Anesthetist GS-9/11
Supervisory Nurse Anesthetist GS-10/12

Description of work

Nurse anesthetists, under medical direction, administer anesthetic agents by various methods to patients undergoing surgery or other medical procedures.

Some positions involve supervisory responsibility over the work of other nurse anesthetists or involve teaching or instructing in the field of anesthesia for nurses.

Minimum education requirements

Candidates for positions at all grades must meet *one* of the following requirements:

A. Graduation with a bachelor's or higher degree in nursing from a school of professional nursing, approved by the legally designated State accrediting agency at the time the program was completed by the candidate.

B. Graduation from a 3-year (at least 30 months) diploma program of professional nursing approved by the legally designated State accrediting agency at the time the program was completed by the candidate.

C. Graduation from an associate degree program or other program of at least 2 years in length, in a school of professional nursing approved by the legally designated State accrediting agency at the time the program was completed by the candidate.

D. Graduation from a school of professional nursing (including foreign schools), of at least 2 years in length other than one covered by A, B, or C above, *provided* that the professional nurse training and the nursing knowledge acquired therefrom are substantially comparable and equivalent to that of graduates of an approved school as described above. Such comparability must be evidenced through active, current registration as a professional nurse as defined below.

[1] This standard replaces the standard for this series which was issued in August 1965.

In examination announcements covering both Nurse Anesthetist and Nurse, GS-610, positions, the portion of the standard relating to Nurse Anesthetist positions should *not* repeat the provisions of minimum education requirements but should state, "In addition to the minimum education requirements listed above in II, applicants must show the additional training or experience as a nurse anesthetist."

Additional training and experience requirements

In addition to meeting the minimum educational requirements, applicants must show training in anesthesia for nurses or experience as a nurse anesthetist as follows:

GS-9: A. Applicants who meet the requirements specified in paragraphs A or B of the minimum education requirements section above must meet *one* of the following requirements:

1. Graduation from at least an 18-month course in a school of anesthesia for nurses accredited by the American Association of Nurse Anesthetists for the year of the applicant's graduation.
2. At least 18 months of progressively responsible experience as a nurse anesthetist.
3. Training in a course of anesthesia for nurses (including clinical experience) and, in addition, sufficient experience as a nurse anesthetist so that the combined training and experience totals 18 months.

B. Applicants who meet the requirements specified in paragraphs C and D of the minimum education requirements section above must meet *one* of the following requirements:

1. Graduation from at least an 18-month course in a school of

anesthesia for nurses accredited by the American Association of Nurse Anesthetists for the year of the applicant's graduation *and* 1 year of experience as a nurse* prior to or following graduation from the course in anesthesia for nurses.

2. At least 30 months of progressively responsible experience as a nurse anesthetist.
3. Training in a course of anesthesia (including clinical experience and, in addition, sufficient experience as a nurse anesthetist so that the combined training and experience totals 30 months.

GS–10: In addition to the requirements at GS–9, 1 year of experience as a nurse anesthetist.

GS–11: In addition to the requirements at GS–9, 2 years of experience as a nurse anesthetist, at least 6 months of which must have involved on-the-job training and experience in nurse anesthetist work which is exceptionally difficult and responsible (e.g., extracorporeal circulation and hypothermia anesthesiological procedures), or the experience must have demonstrated aptitude for supervisory or teaching work in the nurse anesthetist field.

GS–12: In addition to the requirements at GS–9, 3 years of experience as a nurse anesthetist; ability of a high order in the direction, supervision, and coordination of nurse anesthetist activities of major importance, magnitude, and scope.

Other things being equal, the successful completion of a course in a school of anesthesia for nurses accredited by the American Association of Nurse Anesthetists will be given greater weight in rating eligibles than other qualifying training and experience as a nurse anesthetist.

Quality of experience

For any grade, the required amount of experience will in not itself be accepted as proof of qualification for a position. The applicant's record of experience, training, and professional development in the field of nurse anesthetist work must show that he has the ability to perform completely the duties of the position.

For eligibility at grades GS–10 and GS–11, candidates must have had at least 1 year of experience as a nurse anesthetist comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service.

For eligibility at GS–12 and above, candidates must have had experience as a nurse anesthetist comparable to the next lower grade in the Federal service.

Registration requirements for all positions

Applicants must have active, current registration as a professional nurse in a State, District of Columbia, the Commonwealth of Puerto Rico, or a Territory of the United States.

Recency of training and experience for all positions

★Preference may be given to applicants who have had recent training or experience in anesthetic techniques. The importance of specific types of recent experience or training will vary according to the nurse anesthetist position for which rated.★

Qualifications inquiries

In order to obtain information that the applicant possesses high professional and personal qualifications, confidential inquiries, including contacts with supervisors, teachers, and other references, may be made.

Interview

Applicants who meet the education, experience, and other requirements may be requested

* Experience as a practical nurse or nursing assistant equivalent to GS–4 or higher grade in the Federal service may be credited for this experience on a month-for-month basis.

to appear for an interview. The purpose of the interview is to observe and evaluate personal characteristics and qualifications which are essential to the successful performance of the duties of the position.

Basis of rating

No written test is required. Applicants will be rated on the extent and quality of their training and experience. Such ratings will be based upon the applicant's statements in his application and upon any additional information that may be secured, including that secured by inquiries made to his supervisors, teachers, and other references.

Physical requirements

See part II, Physical Requirements, paragraph 5, except that ability to hear the whispered voice is required; in addition, applicants must be able to distinguish shades of color and must possess emotional and mental stability.

Guide for evaluation of qualifications

Some guidance for the evaluation of quality and level of nurse anesthetist training and experience is given herein.

Completion of programs accredited by the American Association of Nurse Anesthetists should receive higher value or credit than completion of other training or experience alone. This organization is the nationally recognized accrediting agency for this occupational field.

Depending upon the degree of recency of such training and/or experience as appropriate, the following are examples of relative values of training in anesthesia:

(1) Accredited training programs in anesthesia which includes 18 months (or more) of training have a higher value than programs which include lesser amounts of such training.

(2) Accredited programs have a higher value than other training programs or experience alone.

The following are examples of relative value of experience in anesthesia:

(1) Experience following accredited training of at least 18 months is more valuable than experience following other accredited training.

(2) Experience, not preceded by accredited training, is generally considered as being of very low value.

Consideration might well be given to the candidate's general standing in his class in the course of anesthesia for nurses in an accredited school. These are of most use where candidates are recent graduates of such courses and other measures (e. g., evaluation of professional nurse anesthetist work experience) are not available.

The nature and extent of self-development activities is a significant factor in evaluating candidates. Nurse anesthetists who take courses or seminars in nursing or in nurse anesthetist work may be given extra credit if the courses are directly appropriate to the duties and responsibilities of the position for which they are being considered.

The qualifications of applicants for positions at the GS-11 and GS-12 grade levels must be considered very carefully in relationship to the specific requirements of the position to be filled.

NURSE SERIES[1]

For professional positions in the Nurse Series, GS–610–4/15.

Occupational Coverage: **Nurse, Clinical Nurse, Community Health Nurse, Occupational Health Nurse, Operating Room Nurse, Psychiatric Nurse, Nurse Anesthetist, Nurse Consultant, Nurse Educator, Nurse Midwife, Nurse Practitioner, Nurse Specialist, Research Nurse.**

DESCRIPTION OF WORK

Nurses apply a professional knowledge of nursing to advise on, administer, supervise, or perform direct or indirect care of patients in hospitals, clinics, health units, homes, schools, and communities; they administer anesthetic agents and supportive treatments to patients undergoing surgery or other medical procedures; promote better health practices; teach; perform research; act as nurse midwives or consult with and advise nurses who provide direct care to patients.

Professional nursing includes a wide variety of categories of work, many of which are highly specialized. For example:

Clinical Nurses provide direct nursing service in the assessment, planning, implementation and evaluation of patient care in hospitals, clinics or other patient care facilities. They frequently work in a specialized clinical area, e.g., surgical ward, ambulatory care, emergency room.

Community Health Nurses provide therapeutic services and coordinate patient and family health information and services to, between, or in homes, hospitals, clinics, schools and communities. They function as client advocates and promote the health maintenance activities of early detection and prevention.

Occupational Health Nurses provide nursing and health services to employees in relation to their occupations and working environments. This entails both the nursing care and treatment of injuries and illnesses of employees, and participation in preventive health programs, health education, and counseling aimed at prevention of disease and health maintenance, and environmental surveys.

Operating Room Nurses provide specialized nursing care to meet the needs of patients undergoing surgical procedures, providing for patient counseling and continuity of care. This involves responsibility for and supervision of the preparation of the operating room and necessary equipment, and for the scheduling of facilities and personnel.

Psychiatric Nurses provide direct nursing service to patients in psychiatric hospitals, psychiatric units in general medical and surgical hospitals, or mental health clinics. This work requires advanced knowledges, skills, and experience in counseling and guidance, and communicative skills which contribute to the redirection of behavior of patients or their families.

Nurse Anesthetists administer anesthetic agents and provide supportive treatment to patients undergoing surgery or other medical procedures.

Nurse Consultants provide consultative and advisory service with respect to one or more facets of the nursing field. They work independently, and the services cover a broad range of activities involving assessing, planning, implementing, coordinating and evaluating nursing programs both within and outside the employing agency.

Nurse Educators develop, provide and administer educational programs and activities for nurses. They teach courses, develop technical phases of educational programs, plan curriculum content and methods of teaching, and advise on the application of approved educational methods for individual schools and communities.

Nurse Midwives provide care for mothers and babies throughout an essentially normal maternity cycle within the framework of a medically directed health service, and are responsible for management, counseling and teaching.

[1] This standard cancels and supersedes the qualification standards for the Nurse Anesthetist Series, GS–605, issued in August 1967; Nurse Series, GS–610, issued in December 1968; and Public Health Nurse Series, GS–615, issued in December 1969.

Nurse Practitioners, through advanced competence in primary health care, provide direct, comprehensive nursing, preventive and therapeutic health services to individuals, families or groups. This includes assessing the health status of individuals, managing the care of selected patients, and providing treatment, health teaching, counseling, guidance, and instructions to individuals/families so that they participate in a plan of care.

Nurse Specialists have an advanced level of competence in the special field for which applying, e.g., medical-surgical, orthopedics, pediatrics, oncology, with experience in clinical practice that demonstrated ability to develop innovative techniques, practices and approaches for patient care.

Research Nurses perform, participate in and/or direct research activities toward development of new or expanded knowledge of the field of nursing or health systems which improve patient care and enhance the clinical practice of nursing.

BASIC REGISTRATION REQUIREMENTS FOR ALL NURSE POSITIONS

Applicants for nurse positions must have active, current registration as a professional nurse in a State, District of Columbia, the Commonwealth of Puerto Rico, or a Territory of the United States.

An applicant who has within the past 12 months, graduated from a school of professional nursing approved by a legally designated State approving agency at the time of graduation, may be appointed at the entrance grade level for which qualified pending attaining State registration as a professional nurse within 6 months after appointment. No person appointed pending registration may be retained beyond 6 months or promoted if registration has not been attained.

BASIC EDUCATIONAL REQUIREMENTS FOR ALL NURSE POSITIONS

Candidates for positions at all grades must meet one of the following requirements:

A. Graduation with a bachelor's or higher degree in nursing from a school of professional nursing, approved by the legally designated State accrediting agency at the time the program was completed by the candidate.

B. Graduation from a 3-year (at least 30 months) diploma program of professional nursing approved by the legally designated State accrediting agency at the time the program was completed by the candidate.

C. Graduation from an associate degree program or other program of at least 2 years, in a school of professional nursing approved by the legally designated State accrediting agency at the time the program was completed by the candidate.

D. Graduation from a school of professional nursing (including foreign schools), of at least 2 years in length other than one covered by A, B, or C above, provided that the professional nurse training and the nursing knowledge acquired therefrom are substantially comparable and equivalent to that of graduates of an approved school as described above. Comparability should be evaluated by a State Board of Nursing. Registration as defined above meets this requirement.

NOTE.—Successfully completed college level course work in nursing, the behavioral, physical or biological sciences related to nursing; nutrition; public health; and maternal and child health in excess of the minimum basic education requirement may be substituted for professional nursing experience at the rate of 1 academic year (i.e., 30 semester hours of undergraduate work) of appropriate education for 9 months of professional nursing experience in establishing eligibility for the GS–5 level. Tutorial or remedial work cannot be substituted.

BASIC EDUCATIONAL REQUIREMENTS FOR CERTAIN SPECIALIZED POSITIONS

In addition to meeting the basic requirements for all nurse positions:

Community Health Nurse.—Candidates for these positions at GS–5 and above must have

graduated from a baccalaureate or higher degree program in nursing approved by the legally designated State approving body.

Nurse Anesthetist.—Candidates for nurse anesthetist positions at GS–9 and above must have graduate from at least an 18 month course in a school of anesthesia for nurses accredited by the American Association of Nurse Anesthetists for the year of the applicant's graduation.

Nurse Midwife.—Candidates for nurse midwife positions must have completed an organized program of study and clinical experience recognized by the American College of Nurse Midwives.

ENTRY LEVEL CREDIT FOR MILITARY EXPERIENCE

Nurse experience gained while in the military as a military corpsman will be accepted for initial appointment at grade GS–4 to the extent that it is accepted by a State licensing body.

EDUCATION AND EXPERIENCE ABOVE THE ENTRY LEVELS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic educational requirements for all nurse positions. Such professional experience must have been in nursing. Such graduate education must have been in nursing with a concentration in a field of nursing (e.g., teaching, a clinical speciality, research, administration, etc.) or closely related non-nursing fields directly applicable to the requirements for the position to be filled.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which being considered.

1. *Experience*

The required amounts of professional experience are:

GS–610

	Associate degree program or diploma program of less than 30 months (years)	Diploma program of 30 months or more (years)	Baccalaureate degree program (years)
GS–4	0	0	0
GS–5	1	0	0
GS–7	2	1	1
GS–9	3	2	2
GS–11 and above	4	3	3

For positions at GS–5: graduates of an associate degree or diploma nursing program of less than 30 months' duration may have experience as a practical nurse or nursing assistant (either voluntary or paid) credited for grade GS–5 on a month-for-month basis to a maximum of 12 months. The practical nurse or nursing experience must have been:

(a) gained under the supervision of a professional nurse;
(b) equivalent to GS–4 or higher; and
(c) relevant to the position to be filled.

For grades GS–7 through 11 at least 6 months of the professional nursing experience must have been at the level of difficulty comparable to that of the next lower grade in the Federal service, or 1 year comparable to the second lower grade.

The applicant's total experience must give evidence of ability to perform the duties of the position. For specialized positions at GS–9 and above, 1 year of professional nursing experience must be sufficiently related to the specialty in both subject-matter and grade-level, to demonstrate the candidate's ability to perform the major duties of the position being filled.

Candidates for positions at GS–12 and above must have at least 1 year of experience at the next lower grade, and must demonstrate a record of accomplishment, professional competence, leadership, and recognition in the profession as in the planning, organizing, directing, and coordinating of nursing projects, or in well-established service as an expert and consultant.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are

qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) *or* Three full academic years of graduate education.

Currency of Knowledges and Skills

At all grade levels, greater credit may be given to applicants who have knowledges of and skills in current nursing practices.

Alternate Requirements

Superior academic achievement at the baccalaureate level is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of Part II, Instructions to Users, of this handbook must be met.

3. *Combinations of Professional Experience and Graduate Education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. Specialized areas of nursing (see Description of Work) may require particular specialized education and experience.

POSSIBLE SELECTIVE FACTORS

Many nursing positions GS–9 and above demand competence in a particular area, gained through specialized experience and/or training. Selective factors for these positions should be reflected in the knowledges, skills and abilities described in the position description.

Some examples of possible selective factors are:

Clinical nurse positions may require advanced knowledges and skills in a particular area such as orthopedics, cardiovascular diseases, intensive care etc.

Occupational health nurse positions located in an industrial environment may require a knowledge of the illnesses and injuries likely to be encountered in such settings, and the skill to identify subtle symptoms of such illnesses. This knowledge and skill may have been gained either through experience in such an environment, or through graduate education in occupational health or both.

Psychiatric nurse positions may require advanced experience or training in professional nursing principles and procedures as applied in a psychiatric setting. Advanced knowledge of personality development theories for evaluating behavior and reaction patterns of patients may also be required.

Nurse anesthetists may be required to have a professional nursing knowledge of the extensive pharmacological properties and physiological effects of anesthetic drugs found in complex surgery. This professional nursing knowledge may be demonstrated by certification by the American Association of Nurse Anesthetists or similar education and training.

Nurse practitioners may be required to have professional knowledge of community health nursing principles, practices, and processes, including physical and emotional assessment, establishment of health and nursing care goals, construction and implementation of care programs, and evaluation of the results which are gained in programs of study accredited by the American Nursing Association or comparable training and experience.

Nurse specialists may be required to have an advanced level of competency in ursing and quality assurance that includes a wide range of nursing theories, practices, procedures and techniques used in the care of hospital patients gained through extensive formal study or experience.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of the handbook.

INTERVIEW

Applicants who meet the education, experience, and other requirements may be required to appear for an employment interview. The purpose of the interview is to observe and evaluate personal charactertisics and qualities which are essential to the successful performance of the duties of the position.

QUALIFICATION INQUIRIES

Reference inquiries, including contacts with candidate's teachers, supervisors, or other persons familiar with the candidate's qualifications may be made to obtain further information about the candidate's professional and personal qualifications for these positions.

BASIS FOR RATING

No written test is required. Applicants will be rated on the extent and quality of their education and experience. Such ratings will be based upon the applicant's statements in the application and upon any additional information that may be secured, including that secured by inquiries made to supervisors, schools and other references.

INSERVICE PLACEMENT ACTIONS

Specialized nursing requirements for positions GS–9 and above may be waived for lateral reassignment or promotion of employees, provided:

1. The candidate has had experience which has provided knowledge of the work of the position for which being considered; and
2. A review of the candidate's experience and performance indicates possession of the necessary skills and abilities and evidence of definite potential for successful performance of the work.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

PUBLIC HEALTH NURSE SERIES[1]

For Positions in the Public Health Nurse Occupation, GS-615 Grades GS-5/15

Public Health Nurse
Consulting Public Health Nurse
Public Health Nurse (Training)
Research Public Health Nurse

DESCRIPTION OF WORK

Public health nurses supervise or give public health nursing care, health teaching, and guidance to individuals and families in homes and schools. Such positions typically are found in public health nursing services which emphasize comprehensive care for mothers and children, and services to patients having communicable diseases and chronic illnesses.

A few public health nurse positions primarily involve advice and consultation on public health nursing programs, teaching or training in public health nursing programs, teaching or training in public health nursing, or research in public health nursing.

EDUCATION, EXPERIENCE, AND OTHER REQUIREMENTS

I. *Basic educational requirements*

Candidates for all positions must meet one of the following requirements:

A. Graduation from a baccalaureate or higher degree program in nursing approved by the legally-designated State approving body. To be acceptable:

(1) For those candidates who completed the program in Spring 1964, or later, the program must have been accredited by the nationally recognized accrediting agency (or else must have included course content and field practice in public health nursing equivalent to that of programs that are accredited.)[2]

(2) For those candidates who completed the program prior to Spring 1964, the program must have been accredited for public health nursing by the nationally recognized accrediting agency or must have been supplemented by study which included course content approved by the nationally recognized accrediting agency for public health nursing preparation.

B. Graduation from either a diploma or associate degree program in professional nursing approved by the legally-designated State approving body and at least 1 academic year in a university public health nursing program accredited by the nationally recognized accrediting agency.

C. Graduation from a foreign school of professional nursing, provided that the nursing education and the nursing knowledge acquired therefrom are substantially comparable and equivalent to that of graduates of nursing schools as described in paragraph A above. Such equivalence must have been evaluated by a school of nursing accredited by the nationally recognized accrediting agency as equivalent to that of its program.

Candidates for positions which involve highly technical research or development or comparable highly technical and scientific functional areas of nursing work must meet the requirements described in paragraph A above.

II. *Registration requirements*

Applicants for all positions must have active, current registration as a professional nurse in a State, District of Columbia, the Commonwealth

---

[1] Cancels and supersedes the standard for this series which was issued in October 1965.

[2] Currently accredited curricula include, within the requirements for the bachelor's degree, course content in public health and public health nursing (community organization, epidemiology, statistics, public health nutrition, health education, environmental sanitation, preventive and rehabilitative nursing, and family and community health) and clinical or field practice in public health nursing in an agency organized for purposes that include public health nursing services to the community. For fuller information for determining equivalency see the National League for Nursing criteria for accrediting baccalaureate program.

of Puerto Rico, or a Territory of the United States.

An applicant who has, within the past 12 months, graduated from a baccalaureate or higher degree program in nursing approved by the legally-designated State approving body, with qualifying preparation in public health nursing, may be appointed at the entrance grade level for which qualified pending attaining State registration as a professional nurse within 6 months after appointment. No person appointed pending registration may be retained beyond 6 months or promoted if registration has not been attained.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic educational requirements. Such professional experience must have been in public health nursing, general nursing, or another specialty area of nursing (e.g., cardiovascular, maternal and infant, operating room, psychiatric, mental health) that is directly applicable to the position to be filled. For GS–9 at least 1 year, and for GS–11 and above at least 2 years of the required professional nursing experience must have been in the public health nursing field.

Such graduate education must have been in nursing in a field that is directly applicable to the position to be filled. An exception to this requirement is that 1 year of the graduate education may have been in directly related fields, e.g., child growth and development, health education, sociology, social work, epidemiology, statistics, microbiology, or geriatrics. Graduate education in the "directly related fields" is qualifying for grade GS–7 only.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for public health nursing education positions must possess the aptitude or ability to perform professional public health nursing education work at the appropriate grade level.

1. *Experience*

In addition to the basic educational requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	Minimum amount of professional experience in appropriate subject-matter fields (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic educational requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade	Minimum amount or level of education in appropriate subject-matter fields
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

SELECTIVE PLACEMENT

Some public health nurse positions demand specific competence in a particular specialty (e.g., maternal and child health, orthopedics, psychiatry, tuberculosis, etc.) and/or in special functional areas such as giving advice and consultation, teaching, research. For such positions, consideration may be limited to those candidates whose records show evidence of the required knowledges, abilities, skills, and personal characteristics.

PERSONAL CHARACTERISTICS REQUIRED

Public health nurse positions require the ability (*a*) to work harmoniously and effectively with others in the organization and (*b*) to establish and maintain satisfactory working relationships with others in hospitals, clinics, the school, social agencies, etc. Public health nurses must have the ability to inspire confidence and motivate patients and the patient's family to follow the treatment program and to use the available health facilities.

Many public health nurses perform their work in homes and schools in which direction and supervision may not be immediately available. In these situations the work requires an extra measure of personal traits such as maturity, objectivity, resourcefulness, and sound judgment.

Some public health nurses require the knowledges, abilities, and skills to give advice and leadership to States and/or localities on the nursing aspects of health services in a specialty area such as maternal and child health, psychiatry, tuberculosis, etc.

These factors should be considered in evaluating candidates in relationship to the requirements of the specific position to be filled.

INTERVIEW

Applicants who meet the education, experience, and other requirements may be requested to appear for an employment interview. The purpose of the interview is to observe and evaluate personal characteristics and qualities which are essential to the successful performance of the duties of the position.

QUALIFICATION INQUIRIES

Reference inquiries, including contacts with candidate's teachers, supervisors, or other persons familiar with the candidate's qualifications, may be made to obtain further information about the candidate's professional and personal qualifications for these positions.

BASIS OF RATING

No written test is required. Applicants will be rated on the extent and quality of their education and experience. Such ratings will be based upon the applicant's statements in her applica-

tion and upon any additional information that may be secured, including that secured by inquiries made to supervisors, schools and other references.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

PRACTICAL (VOCATIONAL) NURSE SERIES, GS-3/6[1]

For Nonsupervisory Nonprofessional Nursing Care Positions in the Practical Nurse Series, GS-3/6

Practical (Vocational) Nurse

Operating Room Practical (Vocational) Nurse

Psychiatric Practical (Vocational) Nurse

DESCRIPTION OF WORK

Practical (Vocational) Nurses perform technical nursing care requiring a basic knowledge of biology, human body functions, human behavior, and nursing procedures. Practical nurse positions are established to perform nursing care procedures normally leading to predictable outcomes in the observation and care of patients.

Operating Room Practical (Vocational) Nurses assist registered nurses and surgeons in a variety of operating room and delivery room activities. They position and drape patients, ensure proper lighting, pass instruments and materials, maintain a sterile field, assist in sponge and needle counts, and dispose of contaminated materials.

Psychiatric Practical (Vocational) Nurses establish and maintain a therapeutic relationship with individual patients or groups of patients, following treatment plans using a variety of treatment procedures to explore patients' behavior and feelings for the purpose of establishing more acceptable approaches to daily living.

More detailed definitions of the above specializations are found in the position-classification standard covering these positions.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Experience Requirements

Candidates must have had qualifying experience in the amounts shown in the following table:

Minimum Amounts of Experience

Grade	Minimum years of experience required
GS-3	0
GS-4	½
GS-5	1½
GS-6	2½

Licensure

Candidates must be currently licensed to practice as practical or vocational nurses in a State or territory of the United States or the District of Columbia or must have made application for a license to practice.

Applications of candidates possessing a license must be accompanied by a certified or photostatic copy of the license, a notarized statement attesting to the fact, or a citation of the license number and State issuing it. Those not licensed must furnish the date on which application was made and the jurisdiction involved. Non-licensed candidates who have completed their training may be appointed subject to obtaining the required license during the probationary period.

Qualifying Experience

This is experience in nonprofessional nursing care work in a hospital, outpatient clinic, nursing home, or other supervised medical, nursing, or patient care facility.

Illustrative examples of nursing care work:

(1) Providing pre- and post-operative patient care;

(2) Caring for mentally ill patients, including observing, recording, and reporting changes in their behavior;

(3) Providing reassurance and encouragement to mentally ill patients;

(4) Assisting surgeons and registered nurses in operating room activities, including passing instruments, maintaining sterile conditions, and draping and positioning patients; and

(5) Setting up and operating special medical equipment and apparatus.

[1] This standard has been approved by the Administrator of Veterans Affairs for use within the Department of Medicine and Surgery under the provisions of Section 4105, Title 38, U.S.C.

Candidates are not required to be proficient in all the tasks listed above. However, their experience, education, and training must clearly show that they possess the skills and knowledges required to perform the work of the job at the grade level for which application is made. As a minimum, the candidate must show:

(*1*) A practical knowledge of:

(a) human body structure,

(b) sterile techniques and procedures, and

(c) how to meet, deal, and work with medical, surgical, and psychiatric patients; and

(*2*) Knowledge of, and skill in, the performance of personal and nursing care procedures and techniques pertinent to the specialized area and grade for which application is made.

Qualifying experience may have been gained in any public or private patient care facility or while on active military duty.

SUBSTITUTION OF EDUCATION AND TRAINING FOR EXPERIENCE

To be acceptable as substitution for qualifying experience, the level and quality of the combined education, experience, and/or training must have equipped the candidate to perform nursing care duties at the grade level of the position to be filled.

Successfully completed education and training of acceptable type and quality may be substituted for experience as specified below:

Successful completion of a program in practical nursing of at least 9 months in length followed by licensure with 1 year of prior work experience as a GS-4 nursing assistant may be substituted for 2 years of qualifying experience.

QUALITY AND LEVEL OF EXPERIENCE

For each grade, creditable experience must have equipped applicants with the knowledges and skills to perform fully the duties of the position being sought.

Applicants must demonstrate progressively responsible experience of a scope, quality, and degree such as to have equipped them with the ability to perform duties at the grade level of the position for which application is made. Typically, this is demonstrated by accomplishment of assignments of the difficulty and responsibility described in the position classification standard used to evaluate positions at the next lower grade in the normal line of promotion to the position being filled. (See also 5 C.F.R. 300, Subpart F.)

BASIS OF RATING

Competitors for all positions will be rated on a scale of 100. For all grades, the basis for rating will be an evaluation of experience, education, training, and licensure in relation to the duties of the position.

SELECTIVE PLACEMENT

Some positions at grades GS-4 and above require competence in a particular specialized field of nonprofessional patient care. This competence may have been acquired through specialized training, specific experience in the field, or a combination of both. An operating room practical (vocational) nurse position, for example, requires a knowledge of operating room procedures and methods, sterile techniques, patient draping and positioning techniques, and the skill to perform these and other duties effectively. Similarly, other positions may require specific skills and knowledges peculiar to a specific field or specialization or the duties assigned to a specific position. For these positions requiring specialized skills and knowledges, the use of selective placement is encouraged at grade GS-4 and above.

INSERVICE PLACEMENT ACTIONS

For inservice placement actions at any grade, the basis of rating is established by the agency in accordance with FPM Supplement 335-1.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the positions without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Apuendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

NURSING ASSISTANT SERIES, GS–1/6[1]

For Nonsupervisory Nonprofessional Nursing Care Positions in the Nursing Assistant Series, GS–1/6

Nursing Aid[2]
Nursing Assistant
Operating Room Nursing Assistant
Psychiatric Nursing Assistant

DESCRIPTION OF WORK

Nursing Aids, under close supervision, perform simple and repetitive personal and nursing care procedures. Nursing aid positions are normally established for training purposes.

Nursing Assistants receive on-the-job training in nursing care which requires some knowledge of human body functions and behavior for the purpose of providing personal nursing care, support duties for diagnostic procedures, technical treatment procedures, patient charting, and patient teaching.

Operating Room Nursing Assistants assist registered nurses and surgeons in a variety of operating room and delivery room activities. They position and drape patients, ensure proper lighting, pass instruments and materials, maintain sterile conditions, assist in sponge and needle counts, and dispose of contaminated materials.

Psychiatric Nursing Assistants give general nursing care, observe and report changes in behavior, and provide reassurance and technical support to mentally ill patients.

More detailed definitions of the above specializations are found in the position-classification standard covering these positions.

For supervisory positions, use the qualification standards for "Supervisory Positions in General Schedule Occupations" in Part III of this handbook, in conjunction with this standard.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Experience Requirements

Except for the substitutions provided for below, candidates must have had qualifying experience in the amounts shown in the following table:

Minimum Amounts of Experience

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-1	none	none	* none
GS-2	½	none	½
GS-3	1	none	1
GS-4	1½	½	2
GS-5	2	1	3
GS-6	2	2	4

* It should be noted that for grade GS-1, no experience, training, or education is required. No written test is required. Candidates must be willing to do personal and nursing care work and show evidence of likelihood of success in assignments.

General Experience. This is experience which has demonstrated the ability:

(1) to learn and perform nursing care duties;
(2) to deal successfully with people; and
(3) to be adaptable to the work situation.

It may have been acquired in any of a number of public or personal contact experiences either in or out of Government.

Specialized Experience. This is experience in nonprofessional nursing care work in a hospital, outpatient clinic, nursing home, or other supervised medical, nursing, or patient care facility. Illustrative examples of nursing care work follow:

(1) Caring for mentally ill patients, including observing, recording, and reporting changes in their behavior;
(2) Providing reassurance and encouragement to mentally ill patients;
(3) Assisting surgeons and registered nurses in operating room activities, including passing instruments, maintaining sterile conditions, and draping and positioning patients;
(4) Providing pre- and post-operative care; and
(5) Setting up and operating special medical equipment and apparatus.

Candidates are not required to be proficient in all tasks listed above. However, their experi-

[1] This standard supersedes the standard for this series which was issued in October 1970.

[2] This standard has been approved by the Administrator of Veterans Affairs for use within the Department of Medicine and Surgery under the provisions of Section 4105, Title 38, U.S.C.

ence, education, and training must clearly show that they possess the skills and knowledges required to perform the work of the job at the grade level for which application is made. As a minimum, the candidate must show:

(*1*) A practical knowledge of:
  (a) human body structure,
  (b) sterile techniques and procedures. and
  (c) how to meet, deal, and work with medical, surgical, and psychiatric patients; and

(*2*) Knowledge of, and skill in, the performance of personal and nursing care procedures and techniques pertinent to the specialized area and grade for which application is made.

Specialized experience may have been gained in any public or private patient care facility or while on active military duty.

QUALITY AND LEVEL OF EXPERIENCE

For each grade, creditable experience must have equipped applicants with the knowledges and skills to perform fully the duties of the position being sought.

Applicants must demonstrate progressively responsible experience of a scope, quality, and degree such as to have equipped them with the ability to perform duties at the grade level of the position for which application is made. Typically, this is demonstrated by accomplishment of assignments of the difficulty and responsibility described in the position classification standard used to evaluate positions at the next lower grade in the normal line of promotion to the position being filled. (See also 5 C.F.R. 300, Subpart F.)

SUBSTITUTION OF EDUCATION AND TRAINING FOR EXPERIENCE

To be acceptable as substitution for specialized experience, the level and quality of the education or training (or of the combined experience, education, and/or training) must have equipped the candidate to perform nursing care duties at the grade level of the position to be filled.

Successfully completed education and training of acceptable type and quality may be substituted for experience requirements as specified below:

(*1*) Graduation from a high school or its equivalent may be substituted in full for the experience requirements at the GS-2 level. (High school education or its equivalent may not be substituted for any part of the experience requirements for GS-3 and above.)

(*2*) Successful completion of a 2-year associate degree program in an accredited community college, junior college, or college or university in a field of study appropriate to the specialization of the position being filled, e.g., psychology. psychiatric technician, or operating room technician may be substituted for the 2 years of experience required for GS-4.

(*3*) Partial completion of professional or practical nurse training in a school approved by the State-approving body may be substituted on a month-for-month basis up to 1 year of specialized experience when the following provisions are met. The candidate must have been in good standing when the training was interrupted. In order to substitute the training for specialized experience, the applicant must have satisfactorily completed courses which involved clinical practice in medical and surgical nursing and infant and child care. Candidates lacking clinical practice in infant and child care may substitute clinical practice in psychiatric or another specialized field of nursing. Any excess specialized training may be credited as general experience. In order to be creditable, the training must have been appropriate to the position being filled.

(4) Education and training other than that outlined above (e.g., course work in Community Health Education in a community college; or training acquired while serving in the Armed Forces of the United States, in the Job Corps, in "new careers" programs), will be allowed appropriate credit for either general or specialized experience, depending upon its applicability and extent.

The maximum amount of experience for which education or training of any kind may be substituted is 3 years (2 years of general and 1 year of specialized experience).

WRITTEN TEST

Candidates for positions at GS–2 and GS–3 must pass a written test of abilities necessary to learn and perform the duties of these positions. The written test should be waived for candidates who qualify on the basis of successful completion of specialized education or training that is substitutable for specialized experience. Such education or training must be appropriate to the position for which application is made, e.g., operating room technician for operating room nursing assistant positions.

BASIS OF RATING

Applicants who meet the minimum qualification requirements, including a passing score on the written test, when required, will be rated on a scale of 70 to 100 based on:

For positions at grade GS–1—an evaluation of the applicant's willingness to do simple and repetitive work of the occupation, dependability, and ability to work safely;

For positions at grades GS–2/3—the applicant's score on the written test or for those competitors not required to pass the written test (see Written Test section above), an evaluation of education, training, and/or experience; and

For positions at grade GS–4 and above—an evaluation of the quality and extent of the applicant's experience, education, training, or other achievements pertinent to the duties of the position to be filled.

INSERVICE PLACEMENT

For inservice placement actions at any grade the basis of rating is established by the agency in accordance with FPM Supplement 335–1.

Credit for High School Education

For inservice placement actions, candidates need show only that they have acquired the additional qualifications required for the new position, that is, the difference between the qualifications required for the position they hold and the position for which they are being considered. Thus, a high school graduate appointed at GS–2 needs 6 months of experience to meet the minimum requirements for a grade GS–3 position.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical

requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Medical Supply Aide and Technician, GS-2/6[1]; [2]

DESCRIPTION OF WORK

Medical supply aides and technicians provide wards, clinics, operating rooms, and other hospital facilities with medical supplies, instruments, sets, and equipment. Duties require a knowledge of aseptic techniques and sterilization procedures; the care, functioning, and uses of supplies, equipment, sets, and instruments; and methods for preparation, storage, and issue of sterile and nonsterile medical supplies and the maintenance of adequate stock levels.

EXPERIENCE REQUIREMENTS

General Experience

Certain general knowledges, skills, and abilities are essential to perform medical supply aide and assistant duties. These are the knowledges and ability to read instructions and schedules and to read data indicators such as dials, calendars, and clocks; to count objects and to tabulate data; and to record in writing names and numbers on reports. Also needed are other general skills and abilities gained in everyday life such as to wash, rinse, and wipe a utensil, place a wire rack on a conveyor, and look for small holes in a piece or wrapping linen. While possession of these knowledges, skills, and abilities is essential, no time requirements are set.

Specialized Experience

Specialized experience is possession of the specific knowledges, skills, and abilities to process, assemble, troubleshoot, prepare, sterilize, store, and issue sterile and nonsterile medical supplies and equipment. This includes knowledge of the technical names, general uses, physical characteristics, and operating conditions of the medical supply items; knowledge of decontaminating, cleaning, preparation, sterilization, and storage procedures; knowledge and skills to operate a washer-sterilizer, ultrasonic unit, and gas and steam sterilizers; ability to distinguish the different types of instruments; and knowledge of aseptic techniques. Examples of positions in which applicants may have obtained these knowledges and skills, other than medical supply aide and technician positions, are operating room technicians, nursing assistants, corpsmen, and some laboratory workers.

For GS-2, there are no specialized experience requirements.

For GS-3, three months of specialized experience are required.

For GS-4, six months of specialized experience are required.

For GS-5, one year of specialized experience is required.

For GS-6, one and one-half years of specialized experience are required.

QUALITY AND LEVEL OF EXPERIENCE

Length of experience alone will not qualify an applicant for a grade level. At grade 4 and above the applicant must have had at least 6 months of experience at a level of difficulty and responsibility equivalent to the next lower grade level, and have demonstrated the ability to work at the higher grade level by such means as evidence of successful details to higher graded positions, or, where the difference in grade level is based primarily on degree of supervision received, by indications that the applicant had gradually received less technical supervision and that the degree of supervision closely matched that at the higher grade level. Refer to the position classification standard for this series for additional information as to the difficulties and responsibilities involved in the work at each grade level.

SUBSTITUTION OF EDUCATION AND TRAINING FOR EXPERIENCE

Graduation from high school or the equivalent may be considered as fully qualifying for

[1] This standard has been approved by the Administrator of Veterans' Affairs for use within the Department of Medicine and Surgery of the Veterans' Administration under the provision of Section 4105, Title 38, U.S.C.

[2] This standard supersedes the standard for this series which was issued in January 1969.

the GS-3 level. However, six months of specialized experience is required for advancement to GS-4 for applicants qualifying on this basis.

Successful completion of courses that provide the knowledges and skills required to process, prepare, and distribute medical supplies may be substituted for specialized experience on an equivalent basis, e.g., vocational training of at least 20 classroom hours a week plus the necessary outside study may be substituted for specialized experience on a week-for-week basis. Courses of study taken at community colleges or other institutions of higher learning in medical supply processing, storage, and distribution may be substituted for the specialized experience on the basis of 15 semester hours for one-half year of specialized experience. Such training should provide the knowledge of the technical names, use, and physical characteristics and shapes of medical supply items; knowledges and skills to operate medical equipment; knowledge of decontaminating, cleaning, and sterilization procedures; knowledge of assembling treatment, diagnostic, and surgical trays and sets; knowledges and skills to operate an automatic washer, ultrasonic unit, and gas and steam sterilizers; and knowledge of aseptic techniques. Examples of courses that may teach those knowledges and skills are medical supply assistant courses, sterile supply courses, and operating room or surgical technician courses. This course work may be obtained through accredited schools, hospitals, the military, or employee development programs. The specific course work must be evaluated to determine whether it is acceptable as a substitute for specialized experience.

BASIS OF RATING

Candidates will be evaluated based on their education and/or experience. No written test is required.

For inservice placement actions at any grade, the basis of rating is established by the agency in accordance with FPM Supplement 335-1.

PERFORMANCE

Recruiting offices should satisfy themselves that applicants possess the basic knowledges, skills, and abilities listed under the General Experience Section above. This can be done by having the applicant read actual instructions, clock dials, thermometers, or other types of material appropriate to the position. The methods used must be standardized so that all applicants for positions in a particular facility receive the same consideration. There should be adequate documentation of the procedures used.

IN-SERVICE PLACEMENT ACTIONS

The requirement for directly applicable specialized experience may be waived for lateral reassignment at GS-3 or GS-4 when:

1. the candidate has had experience which has provided a general familiarity with the work of the position for which the candidate is being considered;
2. a review of the candidate's experience and performance indicates the ability to learn new duties; and
3. the candidate will be entered into a formal training program which will include an assessment of present skills and abilities and an analysis of training needs for providing the remaining basic knowledges and skills required in the work.

PHYSICAL REQUIREMENTS

Most positions require considerable physical exertion, bending, stooping, and lifting in such activities as moving carts loaded with metal instruments, lifting trays of instruments from cart shelves to working surfaces, and positioning wire baskets on overhead conveyor belts. Most positions require standing for long periods of time during such activities as folding linen and assembling trays and sets. Most positions require the ability to read instructions and guidelines, to distinguish between colors on coding tape, and to distinguish differences in such things as tip serrations. Most positions require the ability to perform such tasks as inserting a small rod in the bore of a hypodermic needle. Many

positions involve exposure to contagious diseases while collecting and decontaminating soiled materials. Most employees are exposed to noise and may be required to wear earplugs.

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the positions without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Autopsy Assistant GS–2/5

★The standard established by the Administrator of Veterans Affairs under authority of Section 4105, Title 38, U.S.C., is the same as this standard in all material respects. Slight differences of wording in VA standards may be used in VA announcements.★

Description of work

The *Autopsy Assistant* performs such duties as assisting the pathologist or physician in conducting autopsies by preparing the body before and after the autopsy, by laying out proper instruments for the autopsy, by carrying out certain technical procedures during the autopsy, and by disposing of organs, tissues, etc., as directed. The Autopsy Assistant may also assist in the maintenance of the morgue area and the equipment therein.

→*Experience requirements*←

Except for the substitution of education or training provided for below, applicants for the various grades must show experience in the kinds and amounts as follows:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–2	None	None	None.
GS–3	1	None	1.
GS–4	1	1	2.
GS–5	1	2	3.

Applicants for supervisory positions must have demonstrated that they possess aptitudes, interests, and characteristics necessary for effective performance as a supervisor.

General experience may have been gained in one or any combination of the following:

a. Training and experience as a practical nurse, nursing assistant, or surgical assistant;

b. Training and experience as an embalmer's assistant or apprentice;

c. Experience as a biological aide, medical aide, laboratory assistant, or in other laboratory assignments which provided a general knowledge of human anatomy and the ability to use surgical instruments skillfully;

d. Experience in dissecting animals.

Specialized experience is experience as an autopsy assistant or morgue attendant wherein the applicant has carried out technical autopsy procedures a substantial part of the time.

Any excess of the specialized experience may be applied toward the general experience requirements.

→*Substitution of education or training for experience*←

1. Applicants may substitute for experience resident study in a school above high school level on the basis of 6 semester hours of study for 6 months of general experience up to a maximum of 1 year provided that study was in one or any combination of the following courses, and provided further that such courses included laboratory work: biology, human anatomy, physiology, or zoology.

2. Applicants may substitute successfully completed training in the armed forces in courses which included the subjects of human or veterinary anatomy or physiology. This substitution may be made on a month-for-month basis up to a maximum of 3 months of general experience.

Basis of rating

→No written test is required. For all grade levels, applicants who meet the minimum qualification requirements will be rated on a scale of 70 to 100 based on an evaluation of the quality and extent of the applicant's experience, education, training, or other achievements pertinent to the duties of the position to be filled.

For inservice placement actions at any grade the basis of rating is established by the agency in accordance with FPM Supplement 335–1.

Physical requirements

Applicants must be physically and mentally able to safely and efficiently perform the essential functions of the position. Usable vision is

required and, depending on the essential duties of a specific position, usable hearing or speech may be required. However, in most cases, a specific physical condition or impairment other than complete loss of vision will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform. Reasonable accommodation may include, but is not limited to: job modification, provision of assistive devices, and/or job restructuring.←

DIETITIAN AND NUTRITIONIST SERIES*

Dietitian GS–5/15
Nutritionist GS–5/15
Public Health Nutritionist GS–9/15

DESCRIPTION OF WORK

Dietitians and nutritionists advise on, administer, supervise, or perform work which requires the application of a professional knowledge of the science of nutrition. Dietitians and nutritionists are both concerned with human nutrition needs and are responsible for the development of diet plans or programs for individuals or groups, for instructing others in nutrition matters, and for applying a knowledge of socioeconomic conditions which affect the eating habits of individuals and groups. Dietitians usually perform work which is associated with institutional health care, such as hospitals, domiciliaries, or privately operated group care facilities in the community, and involves responsibility for individual diet plans and for the management of the food service system. Public Health Nutritionists perform work associated with public health services and programs designed to meet the health needs of target groups within the population, such as maternal and child health, geriatrics, and American Indians. Nutritionists perform in nontreatment food assistance programs designed to help target groups within the population, or in research. Major specialties and subspecialties are summarized below:

Dietitians are responsible for nutritional care in managing individual or group feeding, in imparting knowledge concerning food and nutrition, and in applying knowledge to developing and implementing plans for health maintenance and/or improvement.

Administrative Dietitians are members of the management team, responsible for planning and evaluating the food service system, directing and managing food service personnel, planning budgets and managing resources, establishing standards of safety and sanitation, developing specifications for the procurement of equipment and supplies, and developing menu patterns and evaluating client acceptance.

Clinical Dietitians are members of the health care team concerned with continuously providing for the nutritional needs of individuals and groups in acute, intermediate, long-term care and hospital based community care facilities generally involving a specialized problem. They are primarily concerned with assessing nutritional needs, developing therapeutic diets, recording progress in the medical records, providing nutritional education to the patient and family, and recommending changes to the physician. A dietitian may be responsible for one or more wards in a hospital involving patients with general or specialized problems, or for a nutrition or an outpatient clinic which provides similar care for ambulatory or outpatients.

Community Dietitians serve as members of the community health team, responsible for assessing the nutritional needs of individuals and groups located in nursing homes, private homes, or other group care facilities, and for evaluating and advising on the nutritional services provided by the institution to the individual.

Research Dietitians assist physicians or research scientists by planning the diet for the proposed study, by developing precise and complete data on patient nutrient intake and output, and by stimulating participation by patients or volunteer subjects.

Consultant Dietitians provide advice or services in nutritional care which affect the management of resources, such as the evaluating of food service systems, developing budgets and records systems, developing educational materials, recommending layout designs and equipment needs, or counseling clients and consulting with health care teams.

Teaching Dietitians plan, schedule or conduct educational programs for professional staff development, inservice training of nonprofes-

*This standard cancels and supersedes the Qualification Standard for the Dietitian Series, GS–630, issued in March 1961.

NOTE.—This standard has been approved by the Administrator of Veterans' Affairs for use within the Department of Medicine and Surgery of the Veterans' Administration under the provision of Section 4105, Title 38, U.S.C.

sional staff, and may include training for medical interns, nurses, volunteers, patients, or dietetic interns or students.

Nutritionists are specialists in human nutrition concerned with nutritional or food assistance services provided by social, agricultural, or educational agencies to target populations. They perform such duties as assessing nutritional needs of groups, evaluating the nutrition component of programs, interpreting nutrition research or legislation, provide consultation and training, or participating in research.

Public Health Nutritionists serve as members of the health team, and are responsible for planning and administering the community nutrition program for a geographical area or specialty area. This involves such duties as assessing the nutritive quality of food eaten by people in the community; providing consultation and training to administrators, health professionals, and food service personnel in a variety of programs with a food service, nutrition education, and/or health component; conducting dietary studies and providing patient education to groups or individuals in normal and therapeutic nutrition; and consulting on the development and improvement of standards or services provided.

Nutritionists in specialized areas. Current major specializations include maternal and child health, school nutrition and health, group feeding, gerontology, chronic disease, rehabilitation, clinical dietetics, group food service, research, education, and training. The nutritionist plans, develops, implements, evaluates, and promotes the nutrition component of the specialty area to serve the needs of the target population.

Community Nutritionists function as members of the community health team assessing nutrition needs of individuals and groups in the community and providing education and information through individual and group counseling, and through displays, newspapers, radios, and other informational devices.

Nutritionists in Administration plan policy and action related to changing health, service or program needs as influenced by nutrition practices and socioeconomic forces, determine program priorities through the projection of anticipated benefits and expected costs, and evaluates the effectiveness of program services provided.

Additional descriptive material is contained in the Position Classification Standards for the GS-630 Series.

EXPERIENCE AND TRAINING REQUIREMENTS

1. Basic Requirements For All Grades

Successful completion of a full 4-year course of study in an accredited college or university creditable toward a baccalaureate or higher degree in dietetics, food, nutrition, food service management, institution management, or closely related science.

Dietitian: For positions of dietitian the curriculum* must have been in accordance with the qualifying requirements established by The American Dietetic Association (ADA) in effect at the time of graduation. (Professional registration as a registered dietitian (R.D.) is evidence of meeting ADA requirements.)

GS-5—For dietitians and nutritionists, completion of the basic requirement is qualifying for GS-5.

Public Health Nutritionist: Successful completion of a master's degree in public health nutrition, community nutrition, or in nutrition supplemented by public health courses from an accredited college or university.

GS-9—For public health nutritionists, completion of the basic requirement is qualifying for GS-9.

2. Additional Experience and Training Requirements

Candidates for grades GS-7 and above must have had either professional experience or graduate education, or an equivalent combination of both, in addition to meeting the basic requirements. This professional experience or graduate education must have been in or directly related

*Information on ADA approved curriculums may be obtained from The American Dietetic Association, 430 North Michigan Avenue, Chicago, Illinois 60611.

to dietetics or nutrition, or in a field closely related to the position to be filled.

a. Experience

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	Years
GS–7	1
GS–9	2
GS–11 and above	3

Completion of a coordinated undergraduate program, internship, or other clinical component approved by The American Dietetic Association, which was conducted as part of the undergraduate program, or after completion of the basic requirements for a baccalaureate degree, is qualifying at grade GS–7 for dietitians or nutritionists.

Candidates possessing professional registration as a Registered Dietitian meet the full requirements for eligibility at GS–7.

For grades GS–11 and below at least 6 months of the required experience must have been at a level of difficulty comparable to that of the next lower grade or 1 year comparable to the second lower grade in the Federal service. For grades GS–12 and above at least 1 years of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

For any grade, the required amount of experience will not, in itself, be accepted as proof of qualification for a position. The quality of experience, rather than its length, will be given primary consideration. The applicant's total education and experience must give positive evidence of ability to perform all of the duties of the position.

b. Substitution of Education for Experience

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above. This education must have been either in dietetics or nutrition, or in directly related fields such as public health nutrition.

GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; or two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph.D. or equivalent); or, Three full academic years of graduate education.

c. Combinations of professional experience and graduate education

Equivalent combinations of professional experience and graduate education of the type described above are acceptable at each grade.

Professional experience is defined as nonroutine work that required and was characterized by (1) a knowledge of the principles, theories, and methods of dietetics or nutrition; (2) ability to apply such knowledge in the work situation; and (3) positive and continuing development of knowledge and ability, to keep abreast of the advancing and changing discipline. Continuing education in dietetics and nutrition, and in related fields, is an important element of full professional competence which should be considered in evaluating the qualifications of candidates for professional positions.

d. Superior academic achievement

Superior academic achievement cannot be substituted for experience requirements of positions in this series.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook should also be used.

EMPLOYMENT INTERVIEW

Applicants who meet the education, experience, and other requirements may be requested to appear for an employment interview. The prospective employer interviews the applicant to observe and evaluate personal characteristics and qualifications which are essential to the successful performance of the duties of the position.

BASIS OF RATING

No written test is required. Candidates will be rated on the extent, quality and recency of their experience and training, since a professional must keep abreast of constant changes in technology and trends. Ratings will be based upon candidates' statements in their applications and upon any additional information that may be secured, including that secured by inquiries made to supervisors, schools, and other references.

SELECTIVE FACTORS

For some specialized positions, only candidates who possess specific job-related knowledges, skills, and/or abilities may be qualified. For example, if a position requires highly developed skill in research techniques or in maternal and child care, that skill or knowledge may be used as an "in-or-out" selective placement factor. Justification for selective placement factors must show: (a) how the selective factor is directly related to the duties and responsibilities of the position; and (b) why possession of the knowledges, skills, and/or abilities identified as selective factors are necessary for successful performance in the position.

Specialized requirements, for example, are most commonly found in the following areas:

—Research positions, some of which require advanced preparation in dietetics or nutrition as well as in research techniques, to plan, investigate, interpret, evaluate, apply, and expand knowledge in one or more phases of dietetics or nutrition, and to communicate findings through reports and publications.

—Teaching positions, some of which require advanced preparation in dietetics, nutrition, and/or education, to plan, conduct, and evaluate educational programs in one or more dietetic or nutrition subject matter areas.

—Professional registration, (or other acceptable evidence of demonstrated ability to perform at the required level), is required for many positions of director of a dietetic or public health nutrition program in a hospital or other health care facility.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for Positions at GS-5/7

Evaluation of candidates for these grades is based largely on their academic career, with consideration also being given to any experience they may have had.

1. Education: When evaluating a candidate's academic record, consideration should be given to the extent to which the courses successfully completed contribute to the basic knowledge required in the particular position to be filled. For example, for positions involving direct patient care, a curriculum in clinical dietetics would be most desirable.

2. Internship: In evaluating experience gained through an internship, the experience should be related to the duties to be performed. For example, for a position in a hospital, a hospital internship is more valuable than one completed in business or industry, or in a college or university, since the hospital internship provides specific training in nutrition education and therapeutic diets, both essential for hospital dietitian positions.

3. Registration: A Registered Dietitian is a person who meets the qualifications established by the Commission on Dietetic Registration of The American Dietetic Association. Among the requirements for registration are successful completion of the examination for professional registration and the maintaining of continuing education requirements. Since the purpose of the examination and the continuing education requirements is to assure that the dietitian possesses and maintains the common core of knowledge of the profession, registration may be considered in the evaluation of the candidates.

Candidates for Positions at GS-9 and Above

For positions at these levels, evaluation of undergraduate college training is less important than the consideration of graduate education and professional work experience. The same

factors that are used to evaluate the undergraduate academic record may also be used to evaluate the graduate record.

1. The evaluation of a candidate's work experience should consider its nature and significance, its relationship to the requirements of the position, and whether it has involved the performance of professional work of increasing difficulty and complexity, and the assumption of more responsibility.

2. Candidates qualifying on the basis of a master's degree or Ph.D. may be evaluated for completion of a clinical component.

3. Registration by the Commission on Dietetic Registration of The American Dietetic Association may be considered in the evaluation of candidates for positions of dietitian or public health nutritionist.

4. Candidates may also be evaluated for active membership in and presentations before professional organizations, technical publications, participation in seminars and study groups, patents, awards, etc. Technical publications should be evaluated for their contribution to advancing knowledge in dietetics and nutrition, rather than on their quantity alone.

5. Recency of education and experience, and evidence of continuing education in dietetics and nutrition and in related fields, are important elements of full professional competence and may be considered in the evaluation of candidates.

6. Candidates for positions at GS–9 and above should also be evaluated for such skills and abilities as:

—Ability to plan work and evaluate results;
—Skill in analyzing, adapting, or developing materials, such as criteria, specifications, menus, and patient's needs and progress;
—Skill in interpersonal relationships, such as leadership, flexibility, and persuasiveness;
—Skill in oral communications for explaining nutrition to individuals or groups having a wide range of backgrounds, and for teaching students, other professionals, and communicating with groups;
—Skill in written communications for developing technical reports, informational materials, specifications, procedures, and similar tools;
—Ability to stay abreast of changes and new developments within the discipline and closely related areas;
—Ability to work independently, including originating workable solutions.

PHYSICAL REQUIREMENTS

Most positions involve moderate physical exertion, including moving substantial distances, within hospitals or similar facilities, standing, bending, and lifting of light objects, such as medical or procurement records. Ability to read printed material and handwriting, is required in most positions, as well as the ability to communicate effectively and efficiently with patients and others. Many positions involve some amount of exposure to contagious diseases, noise and hazards of kitchen equipment. Protective clothing is required in some situations. A few positions require travel to remote parts of the country.

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the positions without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical

requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Occupational Therapist GS–5/12

DESCRIPTION OF WORK

Occupational therapists plan and carry out treatment utilizing remedial activities of handicrafts such as weaving, ceramics, and leatherwork, to promote recovery or to achieve mental or physical restoration of patients. Occupational therapists evaluate disabilities; and test and evaluate developmental level, manual dexterity, attention span, and work tolerance of patients. They devise adaptations of equipment to meet specific needs of patients.

More detailed discussion of the duties of positions in this series is included in the Multi-Series Classification Standard for Therapist Positions, GS–631/630.

BASIC REQUIREMENTS FOR ALL POSITIONS

Candidates for all positions must have completed successfully a curriculum in occupational therapy approved by a recognized professional accrediting organization at the time the curriculum was completed by the candidate. Candidates must also have completed successfully the clinical affiliation requirements prescribed by the school.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

GS–6.—Candidates who have graduated from an approved curriculum in occupational therapy and who subsequently completed a substantial, e.g., 6 months, program of clinical practice planned to assure professional competence to practice in the occupation, may be rated eligible at GS–6.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS FOR GS–7 AND ABOVE

In addition to meeting the basic requirements, candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both). The professional experience must have been in occupational therapy. The graduate education must have been in a field appropriate to occupational therapy, such as anatomy, physiology, or psychology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade	Minimum amount of professional experience (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade	Minimum amount or level of education in appropriate subject-matter fields
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* 2 full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* 3 full academic years of graduate education.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be con-

sidered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

PERSONAL CHARACTERISTICS REQUIRED

The work of the occupational therapist requires sympathy and sensitivity to the needs and feelings of patients. It calls for such personal traits as empathy, maturity, stability, objectivity, resourcefulness, adaptability, and sound judgment.

Occupational therapist positions require the ability to work harmoniously and effectively with others and to establish and maintain satisfactory working relationships with individuals and groups inside and outside the immediate organization. Another requirement is the ability to inspire confidence and motivate patients to carry out treatment.

Individual assignments of therapist positions frequently emphasize the requirement for specific personal characteristics. Some therapist assignments require a high degree of planning ability in independently developing treatment plans; others require the ability to communicate effectively with neuropsychiatric patients.

In filling positions through either competitive or inservice placement, appointing officers should assure themselves by reference checks, personal interview, or other appropriate means that candidates possess these qualities to the degree necessary for satisfactory performance of the duties of the position.

SELECTIVE PLACEMENT

Selective placement may be used to fill positions which require specialized knowledges or skills, e.g., in teaching, or in application of specialized techniques as appropriate.

BASIS OF RATING

No written test is required. Candidates will be rated on a scale of 100 on the basis of the quantity and quality of their experience and education in relation to the requirements of the positions to be filled.

GUIDE FOR THE EVALUATION OF EDUCATION, TRAINING, AND EXPERIENCE

The classification standard for the therapist occupations provides information on the nature of the work and the knowledges and abilities required for professional therapy work at the various grade levels.

In evaluating the relative qualifications of candidates, the following factors should be considered:

1. *The nature, extent, and quality of education and clinical practice.*—The nature, extent, and quality of education is of primary importance in evaluating the qualifications of candidates for positions at the lower grades. At the higher levels it is also important, but subordinate to proven professional capability demonstrated through experience.

   Distinctions in quality of education should be made on the basis of: (*a*) The extent to which courses in physiology, anatomy, kinesiology, pathology, psychology, education and the specialized field of therapy contribute to the candidate's knowledge of the position; (*b*) the grades achieved in these courses; (*c*) the recency of the education; and (*d*) whether or not the therapist program meets the standards

of a recognized professional accrediting organization.

The quality of the candidate's clinical practice should be evaluated in terms of its length (in clock hours), content, extent of professional supervision, variety of physical and mental conditions treated, the candidate's performance, and whether the program meets the standards of a recognized professional accrediting organization.

2. *Quality of academic achievement.*—As reflected under *Education, Experience, Training, and Related Requirements*, candidates who have completed all the requirements leading to a bachelor's degree in the specialized field of therapy with superior academic achievement qualify for grade GS–7. In ranking candidates at grade GS–7, 1 year of qualifying graduate study should be assigned a higher quality rating than superior undergraduate academic achievement.

3. *Quality of experience and accomplishments.*—Considered here are the candidate's demonstrated knowledge of the specialized field of therapy and related sciences, his professional interests as shown by self-development activities, his stature in the profession, and his accomplishments (considering opportunities for such).

Methods of evaluation

Methods of value in appraising employees' qualifications and promotion potential are discussed in FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2.—In addition, most positions require the ability to distinguish either basic or shades of colors. Applicants must possess emotional and mental stability.

Physical Therapist, GS-5/12

DESCRIPTION OF WORK

Physical therapists plan and carry out treatment, utilizing therapeutic exercise, massage and physical agents such as air, water, electricity, sound, and radiant energy. They perform tests and measurements using manual and electrical means; they interpret results. Therapists devise adaptations of equipment for specific needs of the patients.

More detailed discussion of the duties of positions in this series is included in the Multi-Series Classification Standard for Therapist Positions, GS-631/639.

BASIC REQUIREMENTS FOR ALL POSITIONS

Candidates for all positions must have completed successfully a curriculum in physical therapy approved by a recognized professional accrediting organization at the time the curriculum was completed by the candidate. Candidates must also have completed successfully the clinical affiliation requirements prescribed by the school.

GS-5.—The basic requirements which apply to all grades are fully qualifying for positions at grades GS-5.

GS-6.—Candidates who have graduated from an approved curriculum in physical therapy and who subsequently completed a substantial, e.g., 6 months, program of clinical practice planned to assure professional competence to practice the occupation, may be rated eligible at GS-6.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS FOR GS-7 AND ABOVE

In addition to meeting the basic requirements, candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both). The professional experience must have been in physical therapy. The graduate education must have been in a field appropriate to physical therapy, such as anatomy, physiology, or psychology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

1. Experience

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade	*Minimum amount of professional experience (years)*
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. Education

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; or Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent). *or* Three full academic years of graduate education.

3. Combinations of professional experience and graduate education

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of

part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

PERSONAL CHARACTERISTICS REQUIRED

The work of the physical therapist requires sympathy and sensitivity to the needs and feelings of patients. It calls for such personal traits as empathy, maturity, stability, objectivity, resourcefulness, adaptability, and sound judgment.

Physical therapist positions require the ability to work harmoniously and effectively with others and to establish and maintain satisfactory working relationships with individuals and groups inside and outside the immediate organization. Another requirement is the ability to inspire confidence and motivate patients to carry out treatment.

Individual assignments of therapist positions frequently emphasize the requirement for specific personal characteristics. Some therapist assignments require a high degree of planning ability in independently developing treatment plans; others require the ability to communicate effectively with neuropsychiatric patients.

In filling positions through either competitive or inservice placement, appointing officers should assure themselves by reference checks, personal interview, or other appropriate means that candidates possess these qualities to the degree necessary for satisfactory performance of the duties of the position.

SELECTIVE PLACEMENT

Selective placement may be used to fill positions which require specialized knowledges or skills, e.g., in teaching or in application of specialized techniques as appropriate.

BASIS OF RATING

No written test is required. Candidates will be rated on a scale of 100 on the basis of the quantity and quality of their experience and education in relation to the requirements of the positions to be filled.

GUIDE FOR THE EVALUATION OF EDUCATION, TRAINING, AND EXPERIENCE

The classification standard for the therapist occupations provides information on the nature of the work and the knowledges and abilities required for professional therapy work at the various grade levels.

In evaluating the relative qualifications of candidates, the following factors should be considered:

1. *The nature, extent, and quality of education and clinical practice.*—The nature, extent, and quality of education is of primary importance in evaluating the qualifications of candidates for positions at the lower grades. At the higher levels, it is also important, but subordinate to proven professional capability demonstrated through experience.

   Distinctions in quality of education should be made on the basis of: (*a*) The extent to which courses in physiology, anatomy, kinesiology, pathology, psychology, education and the specialized field of therapy contribute to the candidate's knowledge of the position; (*b*) the grades achieved in these courses; (*c*) the recency of the education; and (*d*) whether or not the therapist program meets the standards of a recognized professional accrediting organization.

The quality of the candidate's clinical practice should be evaluated in terms of its length (in clock hours), content, extent of professional supervision, variety of physical and mental conditions treated, the candidate's performance, and whether the program meets the standards of a recognized professional accrediting organization.

2. *Quality of academic achievement.*—As reflected under *Education*, *Experience*, *Training*, *and Related Requirements*, candidates who have completed all the requirements leading to a bachelor's degree in the specialized field of therapy with superior academic achievement qualify for grade GS-7. In ranking candidates at GS-7, 1 year of qualifying graduate study should be assigned a higher quality rating than superior undergraduate academic achievement.

3. *Quality of experience and accomplishments.*—Considered here are the candidate's demonstrated knowledge of the specialized field of therapy and related sciences, his professional interests as shown by self-development activities, his stature in the profession, and his accomplishments (considering opportunities for such).

Methods of evaluation

Methods of value in appraising employees' qualifications and promotion potential are discussed in FPM Supplement 335-1, Evaluation of Employees for Promotion and Internal Placement.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2.—In addition, most positions require the ability to distinguish either basic or shades of colors. Applicants must possess emotional and mental stability.

Corrective Therapist GS-5/12

DESCRIPTION OF WORK

Corrective therapists perform professional work requiring the application of knowledge of the concepts, principles, and practices of physical education and rehabilitation therapy. They plan and carry out treatment in which they use or adapt various types of physical exercise, physical activities, and equipment for the health maintenance, physical reconditioning, resocialization, or mental restoration of patients. They perform tests and evaluations of muscle strength, endurance, coordination, balance, and vital capacity. They provide individual or group instruction in physical exercise to patients. They devise adaptations of equipment for use of patients.

More detailed discussion of the duties of positions in this series is included in the Multiseries Classification Standard for Therapist Positions, GS-631/639.

BASIC REQUIREMENT FOR ALL POSITIONS

Candidates for all positions must have successfully completed a 4-year course of study at an accredited college or university leading to a bachelor's degree in physical education, corrective therapy or physical therapy.

GS-5.—The basic requirement which applies to all grades is fully qualifying for positions at grade GS-5.

GS-6.—Candidates who have graduated from an approved curriculum and who subsequently completed a substantial, e.g., 6 months, program of clinical practice planned to assure professional competence to practice in the occupation, may be rated eligible at GS-6.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS FOR GS-7 AND ABOVE

In addition to meeting the basic requirement, candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both). The professional experience must have been in corrective therapy or physical therapy. The graduate education must have been in a field appropriate to the therapy such as anatomy, physiology, psychology, or pathology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

1. *Experience*

In addition to the basic requirement, the following amounts of professional experience are required for grades GS-7 and above:

Grade	Minimum amount of professional experience (years)
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirement, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade	Minimum amount or level of education in appropriate subject-matter field
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph.D. or equivalent); *or* Three full academic years of graduate education.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level is qualifying at grade GS-7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS-9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

PERSONAL CHARACTERISTICS REQUIRED

The work of the corrective therapist requires sympathy and sensitivity to the needs and feelings of patients. It calls for such personal traits as empathy, maturity, stability, objectivity, resourcefulness, adaptability and sound judgment.

Corrective therapist positions require the ability to work harmoniously and effectively with others and to establish and maintain satisfactory working relationships with individuals and groups inside and outside the immediate organization. Another requirement is the ability to inspire confidence and motivate patients to carry out treatment.

Individual assignments of therapist positions frequently emphasize the requirement for specific personal characteristics. Some therapist assignments require a high degree of planning ability in independently developing treatment plans; others require the ability to communicate effectively with neuropsychiatric patients.

In filling positions through either competitive or inservice placement, appointing officers should assure themselves by reference checks, personal interview, or other appropriate means that candidates possess these qualities to the degree necessary for satisfactory performance of the duties of the position.

SELECTIVE PLACEMENT

Selective placement may be used to fill positions which require specialized knowledges or skills, e.g., in teaching or in application of specialized techniques, as appropriate.

BASIS OF RATING

No written test is required. Candidates will be rated on a scale of 100 on the basis of the quantity and quality of their experience and education in relation to the requirements of the positions to be filled.

GUIDE FOR THE EVALUATION OF EDUCATION, TRAINING, AND EXPERIENCE

The classification standard for the therapist occupations provides information on the nature of the work and the knowledges and abilities required for professional therapy work at the various grade levels.

A. *Basic requirements*

1. *Curriculum.*—The current educational pattern for positions of corrective therapist is a curriculum of 4 full academic years leading to a bachelor's degree in physical education from an accredited college or university. A bachelor's degree in physical therapy is also qualifying since academic work has included courses in the basic health sciences of anatomy, physiology, kinesiology, pathology, and psychology and in the clinical subjects of therapeutic exercises and assistive devices.

2. *Clinical practice.*—Clinical practice presently consists of a minimum of 240 clock hours of supervised experience in a VA clinical train-

ing program, or in an equivalent training program in a clinical setting under a physician. The program of clinical practice must have been developed in conjunction with an accredited college or university which offers a major in physical education in conjunction with a hospital or rehabilitation center.

B. *Ranking candidates*

In evaluating the relative qualifications of candidates, the following factors should be considered:

1. *The nature, extent, and quality of education and clinical practice*

   The nature, extent, and quality of education is of primary importance in evaluating the qualifications of candidates for positions at the lower grades. At the higher levels, it is also important, but subordinate to proven professional capability demonstrated through experience.

   Distinctions in quality of education should be made on the basis of: (*a*) the extent to which courses in physiology, anatomy, kinesiology, pathology, psychology, education and the specialized field of therapy contribute to the candidate's knowledge of the position; (*b*) the grades achieved in these courses; (*c*) the recency of the education; and (*d*) whether or not the therapist program meets the standards of a recognized professional accrediting organization.

   The quality of the candidate's clinical practice should be evaluated in terms of its length (in clock hours), content, extent of professional supervision, variety of physical and mental conditions treated, the candidate's performance, and whether the program meets the standards of a recognized professional accrediting organization.

2. *Quality of academic achievement*

   As reflected under *Education, Experience, Training, and Related Requirements*, candidates who have completed all the requirements leading to a bachelor's degree in the specialized field of therapy with superior academic achievement qualify for grade GS-7. In ranking candidates at GS-7, 1 year of qualifying graduate study should be assigned a higher quality rating than superior undergraduate academic achievement.

3. *Quality of experience and accomplishments*

   Considered here are the candidate's demonstrated knowledge of the specialized field of therapy and related sciences, his professional interest as shown by self-development activities, his stature in the profession, and his accomplishments (considering opportunities for such).

C. *Methods of evaluation*

Methods of value in appraising employees' qualifications and promotion potential are discussed in FPM Supplement 335-1, Evaluation of Employees for Promotion and Internal Placement.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2. In addition, most positions require the ability to distinguish either basic or shades of colors. Applicants must possess emotional and mental stability.

REHABILITATION THERAPY ASSISTANT SERIES*

Therapy Aid GS–1/3
Occupational Therapy Assistant GS–4/6
Physical Therapy Assistant GS–4/6
Corrective Therapy Assistant GS–4/6
Manual Arts Therapy Assistant GS–4/6
Educational Therapy Assistant GS–4/6
Therapy Assistant GS–4/6

DESCRIPTION OF WORK

Rehabilitation therapy assistants treat, instruct, or work with patients in carrying out activities directed to their physical or mental rehabilitation. Typical duties include (1) giving instruction to patients and attending to their needs during treatment; (2) making observations of progress and behavior and reporting this information; and (3) providing encouragement to patients receiving treatment.

Rehabilitation therapy assistants perform supportive work in fields such as occupational therapy, physical therapy, corrective therapy, manual arts therapy, or educational therapy. The work requires the ability to apply a practical knowledge of therapeutic activities but does not require a full professional knowledge of the concepts, principles, and practices of the specialized therapy.

EXPERIENCE, TRAINING AND RELATED REQUIREMENTS

Grade GS–1

For grade GS–1, no experience, training, or education is required. No written test is required. Candidates must be interested in and willing to perform the work and show evidence of likelihood of success in these assignments.

Experience requirements

Except for the substitutions of education and training provided, candidates must have had experience of the length and kind described below:

Required Length of Experience

Grade	Total experience (years)	General experience (years)	Specialized experience (years)
GS-1	0	0	0
GS-2	½	½	0
GS-3	1	1	0
GS-4	2	1½	½
GS-5	3	2	1
GS-6	4	2	2

*This standard has been approved by the Administrator of Veterans' Affairs for use within the Department of Medicine and Surgery of the Veterans' Administration, under the provisions of sec. 4105, title 38, U.S.C.

General experience

This is experience which either (1) has provided the candidate with some knowledge of the nursing, hospital, medical, or scientific laboratory work environment or (2) has demonstrated success in dealing with people. This experience may have been gained in such positions as nursing aid or orderly, health aid or technician, practical nurse, nursing assistant or patient care technician, psychiatric technician, ward clerk, laboratory aid, medical or hospital corpsman; or it may have been gained in positions involving successfully dealing with people such as sales clerk, recreation aid, educational aid, or camp counselor. (Experience such as janitor, unskilled laborer, housekeeper, or maid will not meet this requirement.) Volunteer or paid experience in a child-care center, nursing home, hospital, or other similar setting may also be credited as general experience.

For manual arts therapy assistants only, apprentice training or experience as a craftsman in such areas as woodworking, carpentry, electricity, electronics, or furniture repair may be credited as general experience.

Specialized experience

This is experience which required application of the knowledges, methods, and techniques of the specialized field of the position to be filled.

Specialized experience may be gained, for example:

a. as a therapy assistant in one or more of the specialized therapies such as occupational, physical, manual arts, corrective, or educational therapy.
b. as a craftsman performing therapeutic or rehabilitation work guiding and instructing patients in one or more of the craft activities used in therapy such as woodworking, electricity, graphic and applied arts, furniture repair and upholstering, and shoe repair.

Experience gained as an assistant or aid in patient care, social work, or psychology, where the duties involved actual participation in physical medicine and rehabilitation activities of

a hospital or clinic, may be credited up to a maximum of 6 months of the required specialized experience.

For positions at grades GS–5 and GS–6, candidates must show evidence of the following knowledges and skills:

—A comprehensive knowledge of clinical practices and procedures and the treatment techniques and procedures of the specialized field of therapy.
—Knowledge of the physical and mental conditions and disabilities of patients in therapy.
—Ability to plan and carry out effective treatment.
—Skill in applying a knowledge of medical terminology.
—Ability to take quick and appropriate action in emergencies.
—Skill in communicating with professional personnel and patients.

Volunteer experience

Experience which has been acquired as a volunteer in community health, social service, or hospital activities will be credited, where appropriate.

Supervisory positions

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook.

QUALITY AND LEVEL OF EXPERIENCE

For GS–4, the 6 months of specialized experience must have been comparable in difficulty and responsibility to the GS–3 level. *For GS–5*, at least 1 year of the required experience must have been comparable in difficulty and responsibility to the GS–4 level, 6 months of what must have been specialized experience. *For GS–6*, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a given grade level. The candidate's total record of experience and education must show that he has the ability to perform the duties of the position to be filled.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education and training of acceptable type and quality may be substituted for the experience requirements as specified below:

GS–2: Successful completion of a full senior high school curriculum *or* General Education Development (GED) high school equivalency certificate may be substituted for the general experience requirements for grade GS–2. High school education or GED high school equivalency certificate may not be substituted for any part of the experience requirements at GS–3 and above.

GS–3: Successful completion of 1 academic year of post-high-school study may be substituted for the experience requirements for GS–3.

GS–4: Successful completion of 2 academic years of post-high-school study in a program directly applicable to the specialized field of therapy may be substituted for the 2 years of specialized and general experience required for GS–4.

Education or training other than that outlined above (e.g., training acquired in the Armed Forces, in the Job Corps, or in manpower development programs), will be given appropriate credit depending upon extent and applicability. At any grade, appropriate post-high-school education may be substituted in part for required experience.

REQUIREMENT FOR WRITTEN TEST

For positions at GS–2 and GS–3, candidates must pass the written test of abilities neces-

sary to learn and perform the duties of these positions.

BASIS OF RATING

Candidates for all positions will be rated on the quality and extent of experience, education, or training in relationship to the duties of the positions. Ranking will be made on the following basis:

For GS-1: An evaluation of the candidate's willingness to do simple and repetitive therapy aid work; his dependability; and his ability to work safely.

For GS-2 and GS-3: Scores on written test.

For GS-4 and above: An evaluation of experience, education, and training related to the duties of the position.

INSERVICE PLACEMENT ACTIONS

Written test

The written test for GS-2 and GS-3 positions should be waived for inservice placement actions.

Credit for high school education

For inservice placement actions, high school education may be credited in accordance with the "add-on" rule; that is, the employee need show only that he has acquired the additional qualifications required for the new position. Thus, a high school graduate appointed at GS-2 needs 6 months of experience to qualify for a grade GS-3 position.

Waiving directly applicable specialized experience requirements at GS-4

For inservice placement actions only, the requirement for directly applicable specialized experience at grade GS-4 may be waived for lateral reassignment of assistants in related fields of therapy, nursing, or recreation work, provided:

1. The candidate has had experience which has provided knowledge of the work of the position for which he is being considered; and,
2. A review of the candidate's experience and performance indicates that he possesses the necessary skills and abilities and has definite potential for successful performance of the work.

SELECTIVE PLACEMENT

Some positions may require particular knowledges and skills. In such instances consideration may be limited to those candidates whose records show that they have the required knowledges and skills.

SPECIAL REQUIREMENTS BECAUSE OF WORK RELATIONSHIPS WITH PATIENTS

Rehabilitation therapy assistant positions involve substantial contact with patients to gain their cooperation in the therapeutic activities, to set them at ease, and to explain the activities. Duties performed require tact, courtesy, and capacity for effective personal work relationships. In filling such positions appointing offices should assure themselves by reference checks, personal interviews, or other appropriate means, that candidates possess these personal qualities to the degree necessary for satisfactory performance of the duties of the positions.

GUIDE FOR EVALUATION OF CANDIDATES IN RELATION TO JOB REQUIREMENTS

Evaluation of education or training

The nature and quality of basic education or training are especially significant in evaluating candidates for the lower grade positions. The following aspects should be considered in evaluating education:

1. The extent of preparation in the specialization in which the work is involved. Courses vary greatly in number, variety, scope, and quality among colleges, junior colleges, and specialized training schools. Courses should be evaluated in terms of relevance to the specialized knowledge re-

quired for the position. Education or "in-house" training which is directly related to the particular requirements of the positions should be ranked higher than other qualifying education. Training which has resulted in certification as a specialized therapy assistant by a nationally recognized accrediting organization should also be ranked higher than other qualifying education or training.

2. The extent of preparation in other fields which provided understanding of nursing hospital procedures, educational techniques, or appropriate crafts or related skills.

Evaluation of experience

Evaluation of experience logically includes the degree and scope of the candidate's knowledge, skills, and abilities which can be brought to bear upon duties of the position to be filled.

For therapy assistant positions, the evaluation should consider the extent of the candidate's knowledge of the area of specialization of the position, its requirements, and the procedures involved. Such knowledge may have been obtained on the job or in training courses specifically related to the work of the position. The quality level to be given to the knowledges thus obtained would depend upon the extent to which the duties and particular grade level of the position require it. Combinations of specialized experience and related training should be accorded a higher quality level than either alone.

In ranking individuals, detailed facts about the position requirements need to be established. For a position which requires specialized knowledge and abilities in a particular field of therapy, experience gained in the particular kind of work and in the same or a directly related field as the position to be filled should normally be ranked as highest quality. Experience in work which is similar to the duties of the position but in a less closely related field, or experience in work which is different from that of the position but in the same or closely related field, should be ranked at lower levels, levels, or as nonqualifying, depending upon the extent of relatedness and needs of the position.

For rehabilitation therapy assistant positions the evaluation of experience includes appraisal of personal attributes and characteristics as demonstrated in performance on the job. This includes the following attributes, abilities, and personal characteristics:

a. Emotional and mental stability;
b. Manual dexterity;
c. Ability to understand and follow oral and written instructions of professional medical and therapy personnel;
d. Ability to make observations of changes or reactions in patients and accuracy in reporting such observation;
e. Patience, tact, and understanding while working with patients;
f. Ability to establish and maintain satisfactory work relationships with professional and nonprofessional personnel in the hospital or clinic.

Methods of evaluation

The following methods of evaluation are suggested for inservice placement:

(1) *Appraisal of experience and education.*—This may be based on information in the personnel file of the employee, with particular attention to those aspects of experience and educational attainments which have special value in the job setting or which have particular relevance to the requirements of the position to be filled.

(2) *Supervisory appraisals.*—These may be obtained by interviewing present and former supervisors, or by requesting written appraisal reports. To be of maximum value in evaluation, the responses on which the appraisals are based should be directed to (*a*) specific work assignments, as well as overall appraisals, (*b*) those aspects of the requirements of the position to be filled which are critical to successful performance, and (*c*) those

elements of the employee's performance which would tend to indicate potential for successful performance in the position for which he is being considered.

(3) *Interview.*—An interview with the employee who is otherwise eligible may be necessary in order to observe and evaluate personal qualities essential to effective performance of the duties of the position.

Other methods of value in appraising employees' qualifications and promotion potential may be found in FPM Supplement 335–1, "Evaluation of Employees for Promotion and Internal Placement."

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2. In addition, some positions require the ability to distinguish either basic or shades of colors, and applicants must possess emotional and mental stability.

MANUAL ARTS THERAPIST SERIES

Manual Arts Therapist, GS–5/12

DESCRIPTION OF WORK

Manual arts therapists perform professional work requiring the application of knowledge of the concepts, principles, and practices of industrial arts education and rehabilitation therapy. They plan and carry out treatment for the physical or mental rehabilitation of patients through remedial activities which involve techniques of vocational education. They use activities in woodworking, electronics, graphics and applied arts to evaluate the vocational potential of patients; to devise projects to maintain or improve skills of patients; and to provide information as to patients' ability to work in a simulated work environment.

More detailed discussion of the duties of positions in this series is included in the Multiseries Classification Standard for Therapist Positions, GS–631/639.

BASIC REQUIREMENT FOR ALL POSITIONS

Candidates for all positions must have completed successfully a 4-year course of study at an accredited college or university leading to a bachelor's degree in industrial arts education, industrial education, manual arts therapy, or occupational therapy.

GS–5.—The basic requirement which applies to all grades is fully qualifying for positions at grade GS–5.

GS–6.—Candidates who have graduated from an approved curriculum and who subsequently completed a substantial, e.g., 6 months, program of clinical practice planned to assure professional competence to practice in the occupation, may be rated eligible at GS–6.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS FOR GS–7 AND ABOVE

In addition to meeting the basic requirement, candidates for positions at grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both). The professional experience must have been in manual arts therapy or occupational therapy. The graduate education must have been in a field appropriate to the therapy, such as anatomy, physiology, or psychology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

1. *Experience*

In addition to the basic requirement, the following amounts of professional experience are required for grades GS–7 and above:

Grade	Minimum amount of professional experience (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirement, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade	Minimum amount or level of education in appropriate subject-matter fields
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level, and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

PERSONAL CHARACTERISTICS REQUIRED

The work of the manual arts therapist requires sympathy and sensitivity to the needs and feelings of patients. It calls for such personal traits as empathy, maturity, stability, objectivity, resourcefulness, adaptability, and sound judgment.

Manual arts therapist positions require the ability to work harmoniously and effectively with others and to establish and maintain satisfactory working relationships with individuals and groups inside and outside the immediate organization. Another requirement is the ability to inspire confidence and motivate patients to carry out treatment.

Individual assignments of therapist positions frequently emphasize the requirement for specific personal characteristics. Some therapist assignments require a high degree of planning ability in independently developing treatment plans; others require the ability to communicate effectively with neuropsychiatric patients.

In filling positions through either competitive or inservice placement, appointing officers should assure themselves by reference checks, personal interview, or other appropriate means that candidates possess these qualities to the degree necessary for satisfactory performance of the duties of the position.

SELECTIVE PLACEMENT

Selective placement may be used to fill positions which require specialized knowledges or skills, e.g., in teaching or in application of specialized techniques, as appropriate.

BASIS OF RATING

No written test is required. Candidates will be rated on a scale of 100 on the basis of the quantity and quality of their experience and education in relation to the requirements of the positions to be filled.

GUIDE FOR THE EVALUATION OF EDUCATION, TRAINING, AND EXPERIENCE

The classification standard for the therapist occupations provides information on the nature of the work and the knowledges and abilities required for professional therapy work at the various grade levels.

A. *Basic requirements*

Curriculum.—The common pattern of professional education in manual arts therapy is a curriculum of 4 full academic years leading to a bachelor's degree in industrial education, industrial arts education, or manual arts therapy. A baccalaureate degree in occupational therapy is also qualifying since academic work has included courses in the basic health sciences of anatomy, physiology, kinesiology, pathology, and psychology; in the creative and manual skills, and in the vocational and avocational

activities employed by manual arts therapy.

B. *Ranking candidates*

In evaluating the relative qualifications of candidates, the following factors should be considered:

1. *The nature, extent, and quality of education and clinical practice*

The nature, extent, and quality of education is of primary importance in evaluating the qualifications of candidates for positions at the lower grades. At the higher levels, it is also important, but subordinate to proven professional capability demonstrated through experience.

Distinctions in quality of education should be made on the basis of: (*a*) the extent to which courses in physiology, anatomy, kinesiology, pathology, psychology, education and the specialized field of therapy contribute to the candidate's knowledge of the position; (*b*) the grades achieved in these courses; (*c*) the recency of the education; and (*d*) whether or not the therapist program meets the standards of a recognized professional accrediting organization.

The quality of the candidate's clinical practice should be evaluated in terms of its length (in clock hours), content, extent of professional supervision, variety of physical and mental conditions treated, the candidate's performance, and whether the program meets the standards of recognized professional accrediting organization.

2. *Quality of academic achievement*

As reflected under *Education, Experience, Training, and Related Requirements*, candidates who have completed all the requirements leading to a bachelor's degree in the specialized field of therapy with superior academic achievement qualify for grade GS–7. In ranking candidates at GS–7, 1 year of qualifying graduate study should be assigned a higher quality rating than superior undergraduate academic achievement.

3. *Quality of experience and accomplishments*

Considered here are the candidate's demonstrated knowledge of the specialized field of therapy and related sciences, his professional interests as shown by self-development activities, his stature in the profession, and his accomplishments (considering opportunities for such).

C. *Methods of evaluation*

Methods of value in appraising employees' qualifications and promotion potential are discussed in FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 8. In addition, most positions require the ability to distinguish either basic or shades of colors. Applicants must possess emotional and mental stability.

RECREATION/CREATIVE ARTS THERAPIST SERIES[1]

Recreation/Creative Arts Therapist GS–5/15 (all specializations)

DESCRIPTION OF WORK

Recreation/Creative Arts Therapists perform professional work requiring application of either (1) a knowledge of the concepts, principles, and practices of recreation therapy, and the use of recreational modalities to maintain the physical and/or mental health or to achieve the physical and/or mental rehabilitation of patients; or (2) a knowledge of the concepts, principles, and practices of a specialized creative arts therapy (i.e., art, dance, music, and psychodrama), and the use of appropriate specialized activity modalities to maintain the physical and/or mental health or to achieve the physical and/or mental rehabilitation of patients. These therapists evaluate the history, interests, aptitudes, and skills of patients by interviews, inventories, tests, and measurements, and use such findings, along with medical records, and the therapy orders of physicians or nurses, to develop and implement recreation therapy or creative arts therapy activities for individual patients. These several therapy approaches are directed toward achieving such therapeutic objectives as diminishing emotional stress of patients, providing a sense of achievement, channeling energies and interests into acceptable forms of behavior, aiding physical and mental rehabilitation, and promoting successful community reentry.

The broad range of therapeutic recreation services in this series is recognized by the following five specialized titles:

Recreation Therapist
Creative Arts Therapist (Art)
Creative Arts Therapist (Dance)
Creative Arts Therapist (Music)
Creative Arts Therapist (Psychodrama)

Using various modalities appropriate to the particular therapy approach involved, therapists in these specializations seek to diminish or eliminate emotional stress or the cause of severe physical or behavioral problems through therapeutic art, dance, music, drama, or recreation activities and services.

BASIC REQUIREMENTS FOR ALL GRADES, GS–5 AND ABOVE

Recreation Therapist

Candidates for positions as recreation therapist must have completed successfully a 4-year course of study in an accredited college or university leading to a bachelor's degree in recreation therapy, *or* in recreation *with therapeutic emphasis or concentration* (e.g., geriatrics, gerontology, or special populations.) If the official bachelor's degree program record does not clearly state that the degree is in recreation therapy (i.e., when it has been in a more general recreation field but with therapeutic emphasis or concentration), the applicant qualifies as a recreation therapist if, in addition to meeting all other requirements, he/she has completed: (1) a minimum of 10 semester hours in non-practicum course work in subjects which are clearly recreation therapy oriented (e.g., Introduction to/Problems of/Fundamentals of Practice in Therapeutic Recreation (TR), Leisure Counseling, Adaptive Physical Activities, TR for Handicapped and Retarded/for Psychiatric, TR Procedures, The Interrelationship of Rehabilitation Services, TR Services in Institutions, Program Leadership in TR Service, Programming in Therapeutic Systems, Analysis of Activities of a TR Modality, Leisure Programs for the Ill and Disabled, Theory and Practice of Rehabilitation); and (2) a minimum of 15 semester hours in the physical, biological, and/or social sciences.

Creative Arts Therapist (Art)

Candidates for positions as creative arts therapist (art) must have completed successfully a 4-year course of study in an accredited college or university leading to a bachelor's degree in art therapy, *or* in art or fine arts *with therapeutic emphasis or concentration* (e.g., an art edu-

[1] This standard has been approved by the Administrator of Veterans Affairs for use within the Veterans Administration under the provisions of Section 4105, Title 38, U.S.C.

cation degree with a minor in art therapy, a fine arts degree with emphasis in creative arts therapy, or a B.S. degree in education with an art therapy minor). If the official degree program record does not clearly state that the degree is in art therapy (i.e., when it has been in the broader field of art, fine arts, or education), the applicant qualifies as a creative arts therapist (art) if, in addition to meeting all other requirements, he/she has completed: (1) a minimum of 10 semester hours in non-practicum course work in subjects which are clearly therapy oriented; and (2) a minimum of 15 semester hours of course work in subjects related to the physical, biological, and/or social sciences.

Creative Arts Therapist (Dance)

Candidates for positions as creative arts therapist (dance) must have completed successfully a 4-year course of study in an accredited college or university leading to a bachelor's degree in dance therapy *or* movement therapy *or* in dance *with therapeutic emphasis or concentration.* If the official degree program record does not clearly state that the degree is in dance therapy (i.e., when it has been in the broader field of dance), the applicant qualifies as a creative arts therapist (dance) if, in addition to meeting all other requirements, he/she has completed: (1) a minimum of 10 semester hours in non-practicum course work in subjects which are clearly therapy oriented; and (2) a minimum of 15 semester hours of course work in subjects related to the physical, biological, and/or social sciences.

Creative Arts Therapist (Music)

Candidates for positions as creative arts therapist (music) must have completed successfully a 4-year course of study in an accredited college or university leading to a bachelor's degree in music therapy or in music with *therapeutic emphasis or concentration* (e.g., a music education degree with a minor in music therapy). If the official degree program record does not clearly state that the degree is in music therapy, the applicant qualifies as a creative arts therapist (music) if, in addition to meeting all other reqiurements, he/she has completed: (1) a minimum of 10 semester hours in non-practicum course work in subjects which are clearly therapy oriented; and (2) a minimum of 15 semester hours of course work in subjects related to the physical, biological, and/or social sciences.

Creative Arts Therapist (Psychodrama)

Candidates for positions as creative arts therapist (psychodrama) must have completed successfully a 4-year course of study in an accredited college or university leading to a bachelor's degree in psychodrama or in drama, the dramatic arts, psychology, or any social science field *with therapeutic emphasis or concentration.* If the official degree program record does not clearly state that the degree is in psychodrama, the applicant qualifies as a creative arts therapist (psychodrama) if, in addition to meeting all other requirements, he/she has completed: (1) a minimum of 10 semester hours in non-practicum course work in subjects which are clearly therapy oriented; and (2) a minimum of 15 semester hours of course work in subjects related to the physical, biological, and/or social sciences.

Regarding Course Work in the Physical, Biological, and Social Sciences

Depending on the therapy specialization, candidates for positions in this series will have a variety of combinations of course work in the physical, biological, and/or social sciences. For example, recreation therapists and creative arts therapists (dance) will have had kinesiology whereas creative arts therapist (psychodrama) will have had a concentration of course work in psychology and other social science subjects which provide an insight into personality development and human behavior.

Meeting Basic Requirements Through Graduate Study

It is possible that an applicant will not have an undergraduate degree in the therapy field involved or in that field with therapeutic emphasis or concentration, but will apply on the basis

of having a graduate degree in the appropriate therapy field. Such a graduate degree is qualifying for basic entry level if it meets the above-stated basic requirements, whether or not the undergraduate degree is related to the therapy specialization. For example: (1) An applicant holding an undergraduate degree in art and a master's degree in art therapy would clearly meet entry level basic requirements; (2) an applicant with an undergraduate degree in education and a master's degree in recreation therapy could be qualified at entry level on the basis of 10 semester hours of non-practicum graduate level course work in recreation therapy, 12 semester hours of graduate level course work in the physical, biological, and social sciences (including kinesiology), and 3 semester hours of undergraduate course work in psychology. (NOTE: Graduate studies credited in meeting basic entry requirements cannot then be credited for meeting higher grade level requirements in this series.)

In addition to a knowledge of the goals, principles, methods, and techniques of (1) the broad general field of recreation, or of (2) the specific field of creative arts involved (i.e., art, music, dance, or drama), the undergraduate courses of study in this field must have provided candidates with the following special therapy-oriented knowledges and skills:

—Knowledge of illness and disability with implications for therapeutic recreation or therapeutic creative arts programming for such special populations as the physically ill and handicapped, mentally ill and handicapped, emotionally disturbed, developmentally disabled, substance abused, psychosocially delinquent, and aging.

—Knowledge of delivery systems specifically related to diagnosis and treatment, including, for example, medical models, leisure education models, therapeutic community, self-help, and special education, and of facilitation and counseling techniques used in providing preventive and rehabilitative psychotherapeutic, physiotherapeutic, and other appropriate therapy services to these special populations.

—Knowledge of activity modification techniques used to adapt the practices and procedures of the specific therapy field involved to the specific needs of individuals and groups among these special populations.

—Knowledge of procedures used in formulating individual and group diagnostic assessments, prescriptions, and treatment plans for special populations, and in recording and reporting client treatment and rehabilitation information, both in single therapy treatment and multidisciplinary treatment settings.

—Skill in adapting standard practices and procedures of the therapy specialization to the physical, psychological, psychosocial, and emotional needs and limitations of individual patients and groups of patients and to the treatment objectives prescribed by medical teams.

These knowledges are typically acquired through a degree program in recreation therapy or in a creative arts therapy field (art therapy, dance therapy, music therapy, or psychodrama), plus a degree-related program of clinical practice and/or a post-graduate program of clinical practice which have given the candidate first hand exposure to the recreation therapy or creative arts therapy needs of the ill, the handicapped, the disabled, and the aging.

GS–5. The basic requirements which apply to all grades are fully qualifying for positions at GS–5.

GS–6. Candidates who have graduated from an approved curriculum in recreation therapy or in a field directly applicable to the specific specialized creative arts therapy which is required, and who have completed (as part of the degree and/or subsequently) a program of 6 months' (1040 clock hours) clinical practice/practicum planned to assure professional competence in the particular therapy specialty required, may be rated eligible at grade GS–6. (A degree-related program of clinical practice/

practicum involves, as a general rule, a period of 240 clock hours (6 weeks) pre-clinical training in the sophomore year, followed by up to 400 clock hours (10 weeks) of clinical practice/practicum in the junior and/or senior years. This 400 clock hours of degree-related practicum may be applied against the 6 months' clinical practice required for GS–6 eligibility. (To illustrate: When an applicant holds a degree which has included 400 clock hours of practicum, a post-graduate program of clinical practice of 640 clock hours provides the combined total of 1040 clock hours required in qualifying for positions at grade GS–6.)

SPECIALIZED EXPERIENCE REQUIREMENTS FOR GS–7 POSITIONS AND ABOVE

A. *Amounts of experience required*

In addition to meeting the basic requirements for GS–5, candidates for positions at GS–7 and above must have the following amounts of professional experience appropriate to the therapy specialization involved.

Grade:	*Minimum amount of professional experience (in years)*
GS–7	*1
GS–9	2
GS–11 and above	3

*This professional experience may be that portion of the 6 months (1040 clock hours) required to qualify for GS–6 level which was gained *after* completion of the undergraduate degree, plus the number of additional months of professional experience required to total 12 months.

B. *Quality (level) of experience*

For positions at all grade levels, specialized experience shown must have been at a sufficiently high level of difficulty and responsibility to demonstrate the ability to perform the duties and responsibilities of the position for which the candidate is applying. Therefore, for positions in grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable at the second lower grade, in the Federal service. For grades–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

C. *Ability outcomes of experience*

As the result of the application of knowledges and skills gained through study to actual work situations, candidates should have acquired experience which has equipped them with the capability to perform fully the work of the positions for which they are being considered, which is demonstrated by possession of the ability (i.e., demonstrated skill in work performance which shows capacity) to:

—Identify the physical, psychological, psychological, and emotional problems, limitations, and needs of the physically and mentally ill or disabled in terms of possible rehabilitation through recreation therapy or creative arts therapy processes and procedures.

—Plan, organize, implement, and manage a variety of therapeutic recreation services, or a range of specialized creative arts therapeutic services (e.g., art therapy, dance therapy, music therapy, or psychodrama therapy) for individual patients or groups of patients within the framework of a medical team approach to patient care, physiotherapy and psychotherapy treatment, and rehabilitation.

—Communicate effectively with and motivate people of widely varying backgrounds, interests and abilities.

—Evaluate the degree to which specific therapeutic activities and overall therapeutic services are meeting rehabilitation goals and objectives.

—Innovate and improve in providing the widest possible range of therapeutic activities within the therapy field involved and which take fully into account the physical, mental, psychosocial, and emotional limitations and needs of the patients served. (This ability involves considerable skill in adapting accepted therapeutic procedures and practices of the particular therapy field to the physical, phychological, psychosocial,

and emotional needs and limitations of individual patients and to the rehabilitation objectives prescribed by medical teams.)

Work experience which may have provided these required abilities can be gained through substantively participating in or being wholly responsible for recreation therapy services or creative arts therapy services to the needs of those in specialized or general medical, surgical, and psychiatric hospitals, geriatric or other special patient wards, nursing homes, and treatment centers, in both inpatient and outpatient settings.

SUBSTITUTION OF SUPERIOR ACADEMIC ACHIEVEMENT OR GRADUATE EDUCATION FOR EXPERIENCE

A. *Superior academic achievement*

Superior academic achievement cannot be substituted for experience requirements of positions in this series.

B. *Graduate education*

In addition to the basic requirements for GS–6 which must be fully met, the following amounts and levels of education which are appropriate to the field of therapy needed are qualifying for grades GS–7 and above, as shown:

Grade	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7 ----	One full academic year of graduate education.
GS–9 ----	Completion of all requirements for a master's or equivalent degree; or 2 full academic years of graduate education. (NOTE: If graduate education has been used to qualify for GS–5/6 entry level, in the absence of an appropriate undergraduate degree, it cannot be used again to qualify for these higher levels.)

C. *Combinations of professional experience and graduate education*

Equivalent combinations of appropriate professional experience and applicable graduate education of the types described above are acceptable at each grade above GS–5 level. In such cases, appropriate education may be substituted for professional experience on the basis of 1 full year of academic study for 12 months of experience. (Thirty semester hours or 45 quarter hours, or the equivalent of full-time or part-time graduate education may be considered to be equal to a full acedamic year of graduate education.)

EXPERIENCE WHICH IS NOT QUALIFYING

Experience in activities or programs which do not require application of a knowledge of the concepts, principles, and practices of recreation therapy or one of the creative arts therapy specializations covered by this standard and which do not involve the use of therapeutic modalities to maintain the physical and/or mental health or to achieve the physical and/or mental rehabilitation of persons is not qualifying for this series.

Examples of recreation positions and related job roles which are not qualifying for these therapist positions are:

Park Administrator and Outdoor Recreation Specialist; Playground Leader; Community Center Recreation Specialist or Leader; Special Services Officer, Armed Forces; Youth Activities Recreation Specialist; Commercial Recreation Leader; Boy's Club Recreation Leader; Y.M.C.A. Recreation Leader; Drama Director; Drama, Art, Dance, or Music Teacher and Specialist; Coach and Sports Specialist; Vocational Counselor; Recreation Specialist for a prison, correctional institution, or school; other diversional-type Recreation Specialist (GS–188) positions; or Recreation Aid or Assistant (GS–189).

Also, education, training, and experience in other therapy fields are not qualifying for any of the therapist specializations covered by this standard. These include: Rehabilitation Therapy Assistant (GS–636); Occupational Therapist (GS–631); Physical Therapist (GS–633); Corrective Therapist (GS–635); Manual Arts Therapist (GS–637); and Educational Therapist (GS–639).

PERSONAL CHARACTERISTICS REQUIRED

The therapy work of this series requires sympathy and sensitivity to the needs and feelings of patients.

Positions in this series require the ability to work harmoniously and effectively with others and to establish and maintain satisfactory working relationships with individuals and groups inside and outside the immediate organization. Another requirement is the ability to inspire self-confidence in and to motivate patients to carry out therapy treatments and health maintenance programs.

Individual assignments of specific therapist positions in this series can emphasize the requirement for other and more specific personal characteristics. For example, some therapist assignments require a high degree of planning ability in independently developing treatment plans; others require the ability to communicate effectively with neuropsychiatric patients.

In filling positions through either competitive or inservice placement, appointing officers should assure themselves by reference checks, personal interviews, or other appropriate means that candidates possess these and any other qualities required to the degree necessary for satisfactory performance of the duties of the position.

BASIS OF RATING

No written test is required. Candidates will be rated on a scale of 100. The basis of rating will be an evaluation of the quantity and quality of their education, training, experience, and personal qualifications in relation to the duties and requirements of the specific therapy positions for which they are being considered. Work experience and relevant course work and other training above the minimum required for a particular therapist position at a particular grade level will be considered in ranking qualified candidates based on the relatedness of work experience, course work, or training to a position's required knowledges, skills, and abilities (KSA's).

Ratings will be based on statements in the application form, any supplemental information forms, college transcripts, and any additional evidence that may be received.

Applicants for 2 or more therapy specializations in this series must meet fully the basic requirements for each of such specializations.

GUIDE FOR THE EVALUATION OF EDUCATION, TRAINING, AND EXPERIENCE

The Multiseries Classification Standard for Therapist Series, GS–631/639, provides general information on the nature of the work and the knowledges and abilities required for various specialized types of professional therapy work at the various grade levels. The work of this series and the duties and responsibilities of positions in this series are to be evaluated according to this classification standard.

A. *Ranking candidates*

In evaluating the relative qualifications of candidates, the following factors should be considered.

1. *The nature, extent, and quality of education.*

   The nature, extent, and quality of education are of primary importance in evaluating the qualifications of candidates for specific positions at the entry level. At the higher levels, educational background is also important but subordinate to proven professional capability demonstrated through experience.

   Distinctions in quality of education should be made on the basis of: (a) the extent to which specific physical, biological, and/or social science courses such as physiology, anatomy, sociology, pathology, psychology or kinesiology, and courses in the required specialized field of therapy (i.e., recreation therapy, art therapy, dance therapy, music therapy, or psychodrama therapy) contribute to the candidate's knowledge of the duties of the specific therapist position to be filled; (b) the grades achieved in

these courses; (c) the recency of the education; and (d) whether or not the therapist program meets the standards of a recognized and appropriate professional credentialing organization (e.g., the National Therapeutic Recreation Association, the American Art Therapy Association, the American Dance Therapy Association, the National Association for Music Therapy, and the American Society of Group Psychotherapy and Psychodrama).

2. *The nature, extent, and quality of clinical practice or other practical training as these are relevant to the position to be filled.*

   The quality of the candidate's clinical practice or other practical training should be evaluated in terms of its length (in clock hours), content, extent of professional supervision, variety of physical and mental conditions treated, the candidate's performance, and whether the program meets the standards of a recognized and appropriate professional credentialing organization.

3. *The nature, extent, and quality of experience and accomplishments.*

   Considered here are the candidate's demonstrated knowledge of and experience in the specific therapy field involved and in related sciences, his/her professional interests as shown by self-development activities, his/her stature in the profession, and his/her accomplishments (considering opportunities for such).

B. *Methods of evaluation for inservice placement*

FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement, describes methods of value in appraising employees' qualifications and promotion potential.

SELECTIVE PLACEMENT

To facilitate selective placement for a specific category of specialized therapist positions covered by this standard, management's specific needs for specialized therapy knowledge, skills, and abilities must be clearly identified and fully detailed in the position description, position title, job vacancy announcement, and crediting plan. All qualified candidates for a specialization must have the appropriate specialized therapy degree (or appropriate therapy-oriented course work), clinical practice, and work experience required for the specific position at the particular grade level involved. Selective placement will be assured by the maintenance of a separate register or register category for each of the five therapy specializations covered by this standard.

QUALIFICATION INQUIRIES

Inquiries, including contacts with applicants' present and former supervisors and associates, may be made to obtain further information concerning the applicants' technical and personal qualifications and general suitability for specific therapist positions included in this series.

INTERVIEW REQUIREMENTS

Skill in interpersonal relationships is vital to success in all of the therapist positions covered by this standard. Accordingly, candidates may be required to appear for an employment interview. The purpose of this interview is to permit the firsthand evaluation of the personal qualities that are important to success in the specific field(s) for which a candidate has applied.

SUPERVISORY POSITIONS

For supervisory positions, use the qualification standards for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X–118 in conjunction with this standard.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to safely and efficiently perform the essential functions of the position. Usable vision, hearing, and speech are required. However, in most cases, a specific physical condition or impairment other than complete loss of vision,

hearing, or speech will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform. Reasonable accommodation may include, but is not limited to: job modification, provision of assistive devices, and/or job restructuring.

EDUCATIONAL THERAPIST SERIES **GS-639 (P. 1)**

Educational Therapist GS-5/12

DESCRIPTION OF WORK

Educational therapists perform professional work requiring application of the concepts, principles, and practices of education and rehabilitation therapy. They plan and carry out treatment using educational methods and techniques. They use and interpret the results of tests and measurements to determine the learning ability and educational level of patients. They guide or instruct patients in subjects of elementary, secondary, or post-secondary school level for the purpose of diminishing emotional stress, providing a sense of achievement, or channeling energies into acceptable forms of behavior.

More detailed discussion of the duties of positions in this series is included in the Multiseries Classification Standard for Therapist Positions, GS-631/639.

BASIC REQUIREMENT FOR ALL POSITIONS

Candidates for all positions must have completed successfully a 4-year course of study at an accredited college or university leading to a bachelor's degree in education, or in a field directly applicable to the work, such as occupational therapy or psychology, provided that the curriculum included or was supplemented by a minimum of 12 semester hours in education.

GS-5.—The basic requirement which applies to all grades is fully qualifying for positions at grade GS-5.

GS-6.—Candidates who have graduated from an approved curriculum and who subsequently completed a substantial, e.g., 6 months, program of clinical practice planned to assure professional competence to practice in the occupation, may be rated eligible at GS-6.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS FOR GS-7 AND ABOVE

In addition to meeting the basic requirement, candidates for positions at grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both). The professional experience must have been in educational therapy. The graduate education must have been in a field appropriate to the therapy, such as anatomy, physiology, or psychology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

1. *Experience*

In addition to the basic requirement, the following amounts of professional experience are required for grades GS-7 and above:

Grade	*Minimum amount of professional experience (years)*
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirement, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph.D. or equivalent); *or* Three full academic years of graduate education.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, or part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations, in part III of this handbook.

PERSONAL CHARACTERISTICS REQUIRED

The work of the educational therapist requires sympathy and sensitivity to the needs and feelings of patients. It calls for such personal traits as empathy, stability, objectivity, resourcefulness, adaptability, and sound judgment.

Educational therapist positions require the ability to work harmoniously and effectively with others and to establish and maintain satisfactory working relationships with individuals and groups inside and outside the immediate organization. Another requirement is the ability to inspire confidence and motivate patients to carry out therapy treatments and health maintenance programs.

Individual assignments of therapist positions frequently emphasize the requirement for specific personal characteristics. Some therapist assignments require a high degree of planning ability in independently developing treatment plans; others require the ability to communicate effectively with neuropsychiatric patients.

In filling positions through either competitive or inservice placement, appointing officers should assure themselves by reference checks, personal interview, or other appropriate means that candidates possess these qualities to the degree necessary for satisfactory performance of the duties of the position.

SELECTIVE PLACEMENT

Selective placement may be used to fill positions which require specialized knowledges or skills, e.g., in teaching or in application of specialized techniques, as appropriate.

BASIS OF RATING

No written test is required. Candidates will be rated on a scale of 100 on the basis of the quantity and quality of their experience and education in relation to the requirements of the positions to be filled.

GUIDE FOR THE EVALUATION OF EDUCATION, TRAINING AND EXPERIENCE

The classification standard for the therapist occupations provides information on the nature of the work and the knowledges and abilities required for professional therapy work at the various grade levels.

A. *Ranking candidates*

In evaluating the relative qualifications of candidates, the the following factors should be considered:

1. *The nature, extent, and quality of education and clinical practice*

   The nature, extent, and quality of education is of primary importance in evaluating the qualifications of candidates for positions at the lower grades. At the higher levels it is also important but subordinate

to proven professional capability demonstrated through experience.

Distinctions in quality of education should be made on the basis of: (*a*) the extent to which courses in physiology, anatomy, kinesiology, pathology, psychology, education and the specialized field of therapy contribute to the candidate's knowledge of the position; (*b*) the grades achieved in these courses; (*c*) the recency of the education; and (*d*) whether or not the therapist program meets the standards of a recognized professional accrediting organization.

The quality of the candidate's clinical practice should be evaluated in terms of its length (in clock hours), content, extent of professional supervision, variety of physical and mental conditions treated, the candidate's performance, and whether the program meets the standards of a recognized professional accrediting organization.

2. *Quality of academic achievement*

As reflected under *Education, Experience, Training, and Related Requirements*, candidates who have completed all the requirements leading to a bachelor's degree in the specialized field of therapy with superior academic achievement qualify for grade GS–7. In ranking candidates at GS–7, 1 year of qualifying graduate study should be assigned a higher quality rating than superior undergraduate academic achievement.

3. *Quality of experience and accomplishments*

Considered here are the candidate's demonstrated knowledge of the specialized field of therapy and related sciences, his professional interests as shown by self-development activities, his stature in the profession and his accomplishments (considering opportunities for such).

B. *Methods of evaluation*

Methods of value in appraising employees' qualifications and promotion potential are discussed in FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2. In addition, most positions require the ability to distinguish either basic or shades of colors. Applicants must possess emotional and mental stability.

NUCLEAR MEDICINE TECHNICIAN SERIES[1]

Nuclear Medicine Aid GS-1/3
Nuclear Medicine Technician GS-4/12

DESCRIPTION OF WORK

Nuclear medicine technicians use radionuclides (exclusive of sealed radiation sources) for diagnostic, therapeutic, and investigative purposes. Such positions require a technical knowledge of the principles and practices of nuclear medicine and the ability to perform tests and examinations using radionuclides, radiation detectors, scanning apparatus, and related equipment in medical laboratories and clinics.

Nuclear medicine technicians perform a variety of tasks such as the following:

—Prepare radionuclides using either kits or wet-lab techniques. They calibrate radiopharmaceuticals against a standard, or they calculate and dilute to measure.

—Administer oral doses, draw blood, and, in some cases, give injections.

—Review and abstract data from patients' charts.

—Receive patients, explain procedures to them, position them for tests, and tend to their comfort during tests.

—Judge the quality of their scans and, in general, exercise quality control over their work.

—Set up their instruments on a daily basis, checking voltages, concentrations, radiation levels, etc.

—Operate equipment such as rectilinear scanners, detector probes, well counters, scalers, and scintillation cameras for static and dynamic studies.

—Utilize a basic knowledge of radiation safety in handling, storing, and disposing of radionuclides, and cleaning laboratory ware. They routinely use monitoring instruments, film and ring badges, and are familiar with regulations and techniques for monitoring persons and hospital space.

EXPERIENCE, EDUCATION, AND OTHER REQUIREMENTS

Experience requirements

Except for the substitutions provided below, candidates must have had qualifying experience of the type and amounts shown in the following table:

MINIMUM YEARS OF EXPERIENCE REQUIRED

Grade	*General experience (years)*	*Specialized experience (years)*	*Total experience (years)*
GS-1	0	0	0
GS-2	½	0	½
GS-3	1	0	1
GS-4	1½	½	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5
GS-8 and above	2	4	6

General experience

General experience is that which has provided the candidate with:

—Basic knowledge of chemical, biological, pharmaceutical, electronic, or medical laboratory procedures and equipment; or

—Basic knowledge of patient care techniques, treatments, and terminology.

General experience may have been acquired as an aid or technician in a medical, scientific, or industrial laboratory, a medical radiology technician, a medical machine technician, or a nursing assistant or medical corpsman. (These examples are not intended to be all inclusive.)

Specialized experience

Specialized experience is that which has provided the knowledges, skills, and abilities needed to perform nuclear medicine tests and examinations. Such knowledges, skills, and abilities are generally acquired by providing

[1] This standard has been approved by the Administrator of Veterans Affairs for use within the Veterans Administration under the provisions of section 4105, title 38, U.S.C.

technical support to physicians or other professional nuclear medicine personnel in the diagnosis, care, and treatment of patients, the therapeutic application of radionuclides, and the preparation of radiopharmaceuticals for nuclear medicine research and investigation.

Supervisory positions

For supervisory positions, the qualification standard for *Supervisors of Work Classifiable at One-Grade Intervals*, in part III of this handbook should be used in conjunction with this standard.

QUALITY AND LEVEL OF EXPERIENCE

For GS–1, no written test, experience, training, or education is required. Applicants must be willing to perform simple nuclear medicine aid work and show evidence of likely success on the job.

For GS–2 and GS–3, the general experience requirements are broad in intent and do not include any specialized skill in nuclear medicine.

For GS–4, candidates must have had at least six months of specialized experience comparable in difficulty and responsibility to the GS–3 level.

For GS–5, candidates must have had at least one year of experience comparable in difficulty and responsibility to the GS–4 level, of which at least six months must have been specialized experience.

For GS–6 through GS–11, at least one year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or → two years of specialized experience must have been comparable to the second lower grade.

For GS–12 at least one year of the required specialized experience must have been comparable to next lower grade. ←

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's total record must demonstrate that he is able to perform the duties of the position being filled.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

—*GS–2:* Graduation from a full 4-year or senior high school, or possession of a General Educational Development High School Equivalency Certificate, may be substituted in full for the experience required at GS–2. (High school education, or the General Educational Development High School Equivalency Certificate, may not be substituted for any part of the experience required at GS–3 and above.)

—*GS–3:* One year of post-high school academic study that included at least one course in scientific subjects such as biology, anatomy, physiology, chemistry, physics, medical technology, or nuclear medicine may be substituted for one year of experience.

—*GS–4:* Two years of academic study with at least 12 semester hours in any combination of the subjects listed above for GS–3 may be substituted for two years of experience including one-half year of specialized experience. This meets in full the experience requirements at the GS–4 level.

—*GS–5:* Four years of academic study that included at least 24 semester hours in any combination of the subjects listed above may be substituted for three years of experience including one year of specialized experience. This meets in full the experience requirements at the GS–5 level.

Successful completion of a training program for nuclear medicine technicians or medical or radiology technicians may be substituted, on a month-for-month basis, for a maximum of one year of specialized experience.

Education and training other than that outlined above (e.g., training acquired in the

Armed Forces of the United States, in the Job Corps, or in manpower development programs) will be granted credit, on a month-for-month basis, according to its applicability and extent.

Three years of experience (two years of general and one year of specialized) is the maximum for which education of any kind may be substituted.

WRITTEN TEST

Candidates for positions in grades GS–2 and GS–3 must pass a written test of abilities necessary to learn the duties of nuclear medicine technician positions. The written test may be waived for candidates who have successfully completed the equivalent of a specialized training program in nuclear medicine of at least six months.

BASIS OF RATING

Competitors for all positions will be rated on the quality and extent of experience, education, or training in relation to the duties of the positions. Ranking will be made on the following basis:

—*GS-1:* An evaluation of the candidate's willingness and ability to learn to utilize the equipment, methods, and techniques of nuclear medicine; his dependability; and his ability to work safely.

—*GS-2 and 3:* Written test scores, or an evaluation of experience, education, and training of candidates who attained a passing score on the written test.

—*GS-4 and above:* An evaluation of experience, education, and training in relation to the duties of the position.

INSERVICE PLACEMENT ACTIONS

Written test

For inservice placement actions at GS-2 and GS-3, the test is *not* required and, therefore, may *not* be used on a pass-fail basis. In addition, the test may *not* be used in evaluating or ranking eligible employees unless the test is approved for this purpose by the Civil Service Commission. (See section A-3, appendix A, FPM Supplement 335-1.)

Credit for high school education

For inservice placement actions, high school education may be credited in accordance with the "add-on" rule; that is, the employee need only show that he has acquired the additional qualifications required for the new position. Thus, a high school graduate appointed at GS-2 needs 6 months of experience to qualify for a grade GS-3 position.

Substitution for directly applicable specialized experience requirement at GS-4 and GS-5.

For inservice lateral reassignment actions only, experience in related occupations may be substituted for 6 months of specialized experience at GS-4, and 1 year of specialized experience at GS-5 provided:

—The candidate has general knowledge of the work of the position for which he is being considered; and

—A review of the candidate's experience and performance indicates that he has the necessary skills and abilities and evidences definite potential to successfully perform the work.

SELECTIVE PLACEMENT

Some positions, particularly at the higher levels, may require highly specialized knowledges and skills. For such positions, consideration may be limited to those candidates whose records show that they have the required knowledges and skills. Typically, the requirement will be for knowledges and skills in a specialized area of nuclear medicine or for competence in operating a particular kind of machine or equipment.

SPECIAL REQUIREMENTS FOR POSITIONS INVOLVING PERSON-TO-PERSON WORK RELATIONSHIPS WITH PATIENTS

Most positions involve substantial contact with patients to gain their cooperation during the examination or treatment, to set them at ease, and to explain the procedures if necessary. These responsibilities require tact, courtesy, and capacity for person-to-person work relationships. In filling these positions, appointing offices should assure themselves by reference checks, personal interviews, or other appropriate means, that applicants possess the necessary qualities to perform the duties satisfactorily.

GUIDE FOR EVALUATION OF CANDIDATES

Education or training

Education or training provides a good foundation for entering positions below GS-5. Of course, the more closely related the training is to nuclear medicine the better. Candidates with substantial formal training in nuclear medicine are rare. Therefore, recruiters must look to related scientific and medical areas for potential nuclear medicine technicians. Many nuclear medicine technicians use their formal training in

areas such as medical radiology, medical technology, or biology, as a base upon which to build, on the job, their specific knowledges and skills in nuclear medicine.

The courses in science and medical technology that have been identified as the education substitution at GS–2 through GS–5 are purposely very general allowing a variety of cc ıbinations. This is to permit a reasonable amount of flexibility in filling positions. Distinctions should be made in the quality of the course work, considering the extent to which the courses provide the kinds of knowledges and skills nuclear medicine technicians need.

Experience

General experience, which is acceptable for candidates at GS–2 and GS–3, and for inservice placement actions at GS–4 and GS–5, should be carefully evaluated to determine the quality and depth of the candidate's knowledge and its applicability to nuclear medicine. There are substantial differences in duties and responsibilities of individual aids and technicians in medical laboratories, radiology departments, etc. Experience in these areas should be given more than a surface analysis.

Many candidates will have a combination of education and experience. For such cases, in addition to considering the *amount and level* of education and experience, one should consider how well they complement one another. Some combinations seem to provide a particularly sound base for further training in nuclear medicine (for example, college level courses in science or medical technology combined with experience as an aid or technician in a medical environment or as a medical corpsman).

Specialized experience should be evaluated with regard to the specific requirements of the position being filled. The following factors should be considered:

—depth and intensity of technical knowledge;
—nature and variety of the techniques, procedures, and equipment utilized; and
—recency.

Personal attributes

The following are attributes one should look for in candidates for nuclear medicine technician positions:

—accuracy in performing examinations or treatments and in reading and reporting findings;
—meticulous attention to details;
—ability to perform examinations or treatments orderly and systematicallv:
—reasoning ability;
—dexterity;
—ability to work for long periods, observing details accurately and taking actions on the basis of such observation;
—ability to work cooperatively with professional and paramedical personnel in the hospital or clinic;
—sensitivity to patients and their needs; and
—ability to gain cooperation of the patients.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 5. In addition, applicants must possess emotional and mental stability, and some positions require the ability to distinguish either basic or shades of colors.

MEDICAL TECHNOLOGIST SERIES [1]

Medical Technologist
Supervisory Medical Technologist

GS–5 and above

This standard supersedes the qualification standard for the Medical Technologist Series, GS–644, published in December 1968.

DESCRIPTION OF WORK

Medical technologists are engaged in clinical laboratory work which requires professional knowledge and competence in the field of medical technology. Most medical technologists work in hospital or outpatient-clinic laboratories performing analyses of human blood, urine, and other body fluids or tissues. They produce test data for use by physicians in detecting, diagnosing, and treating diseases; they usually also have some responsibility for teaching medical technologist students, medical technicians, and other medical personnel in formal or informal programs (classroom instruction and/or on-the-job training). Some medical technologists have as a primary assignment conducting research; evaluating, modifying, or developing new methods or revising standard methods based on the findings of investigation; developing or coordinating education programs; inspecting and evaluating laboratory services; providing technical assistance and laboratory management consultation; developing policies and standards for the regulation of clinical laboratories; performing administrative/managerial functions; or other similar duties.

Some medical technologists, particularly in smaller laboratories, are generalists. Others specialize in one or more of the clinical disciplines or subdisciplines (microbiology, bacteriology, etc.) or functional areas (administration, education, research) of medical technology.

[1] This standard has been approved by the Administrator of Veterans Affairs for use within the Department of Medicine and Surgery of the Veterans Administration under the provisions of Section 4105, Title 38, U.S.C.

BASIC REQUIREMENTS FOR ALL GRADES

Candidates for all medical technologist positions must have successfully completed the requirements of one of the following paragraphs:

A. A full four-year course of study that included or was supplemented by at least 12 months in a college or hospital-based medical technology program or school of medical technology accredited by the American Medical Association's Committee on Allied Health Education and Accreditation (CAHEA). The professional medical technology curriculum [2] may have consisted of a one-year post-baccalaureate certificate program or the last one or two years of a four-year program of study culminating in a bachelor's degree in medical technology.

B. A full four-year course of study that met the requirements for a bachelor's or higher degree from an accredited college or university with major study in medical technology, chemistry, or biology. Such study must have included or been supplemented by at least 16 semester hours (or equivalent) of biologic science (with one course in microbiology and one course in immunology), 16 semester hours (or equivalent) of chemistry (with one course in organic or biochemistry), and three semester hours (or equivalent) of college mathematics. The remaining courses to complete the requirements may have been in general chemistry, qualitative analysis, qualitative chemistry, quantitative chemistry, physical chemistry, analytical chemistry, general biology and/or zoology, physics, statistics, or any of the areas or fields listed under "Qualifying Course Work" below. To be acceptable the curriculum must give posi-

[2] Information on CAHEA-accredited education programs may be obtained from the American Medical Association, Department of Allied Health Education and Accreditation, 535 North Dearborn Street, Chicago, Illinois 60610.

tive evidence of having provided professional knowledge in each of the four major disciplines of medical technology: microbiology, clinical chemistry, hematology, and immunohematology (blood banking). (NOTE: The requirement for a course in immunology may be met by any course which covers, or which has a section which covers, the following topic areas: (1) definition and relationships of antigens and antibodies; (2) host-antigen interactions; (3) bursal and thymic influences on lymphoid cells; and (4) humoral and cellular response mechanisms. If the course title or course description mentions immunology or immunobiology, the course usually will be acceptable. If there is no mention of immunology or immunobiology, then the content of the course should be considered.)

C. A combination of (1) at least 35 semester hours of biologic science, chemistry, and mathematics as described in paragraph B and (2) additional appropriate education and/or experience, totaling four years. This combination of education and experience must have provided knowledge of the theories, principles, and practices of medical technology equivalent to that provided by the full four-year course of study described in A or B above. All science and mathematics courses offered in fulfillment of this requirement must have been acceptable for credit toward meeting the requirements for a science major at an accredited college or university. Experience which may be accepted in combination with the required education (e.g., responsible professional or technician experience in a hospital laboratory, health agency, industrial medical laboratory, pharmaceutical house, or teaching, test development, or medical research program) must have provided an understanding of the methods and techniques applied in performing professional clinical laboratory work. Certification/licensure as a medical technologist (generalist) obtained through written examination by a nationally recognized credentialing agency or State licensing body or through passing the Proficiency Examination for Clinical Laboratory Technologists (the "HHS Proficiency Examination") sponsored by the Department of Health and Human Services (formerly the Department of Health, Education, and Welfare) is a good indication that the quality of experience is acceptable.

Candidates for positions involving highly technical research, development, or similarly complex scientific functions must have completed the full four-year course of study described in A or B above.

Qualifying Course Work

Medical technology encompasses a number of disciplines or areas of clinical laboratory science, the four major ones being microbiology, clinical chemistry, hematology, and immunohematology (blood banking). These sciences include bacteriology, mycology, mycobacteriology, tissue culture, virology, parasitology, endocrinology, enzymology, toxicology, urinalysis, coagulation, hemostasis, cell morphology, immunology, serology, immunoserology, immuno-deficiency, hemolysis, histocompatibility, cytogenetics, and similar disciplines or areas of laboratory practice. Related fields include physiology, anatomy, molecular biology, cell biology, embryology, pathology, genetics, pharmacology, histology, cytology, nuclear medicine, epidemiology, biostatistics, infection control, and similar disciplines or areas of science *where the work is directly related or applies to medical technology.* Except where the course work deals with a limited and specific segment of the science, where it might be limited in usefulness, most of the work, including that dealing with the development and use of medical technology methods, procedures, and techniques, is qualifying.

GS-5: Completion of the basic requirements for all grades is fully qualifying for GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Positions above GS–5 require either professional experience or graduate education, or an equivalent combination of both, in addition to completing the basic requirements. This professional experience or graduate education must have been in (1) the general field of medical technology, (2) one of the disciplines or specialized areas of medical technology, or (3) a field directly related and applicable to medical technology or to the position to be filled. This experience and/or education, with pertinent self-study, must give positive evidence of having equipped the candidate to perform all the duties of the position.

The professional experience required for positions above GS–5 is defined as analytical or evaluative work that required and was characterized by the application of knowledge of the concepts, theories, principles, and practices of medical technology and related disciplines and by the positive and continuing development of knowledge to keep abreast of the advances and changes in the field.

Experience

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	Years
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least six months of the required experience must have been at a level of difficulty comparable to that of the next lower grade or one year comparable to the second lower grade in the Federal service. For grades GS–12 and above, at least one year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service. To determine the level of difficulty of the candidate's experience, refer to the position classification standard for the Medical Technologist Series, GS–644.

For any grade, the required amount of experience will not, in itself, be accepted as proof of qualification for a position. The quality of experience, rather than its length, will be given primary consideration.

Education

In addition to the basic requirements, the following amounts of graduate education (expressed in terms of years of full-time graduate study) are qualifying for grades GS–7 and above:

Grade:	Years
GS–7	1
GS–9	2
GS–11	3

or

Completion of all requirements for a master's or equivalent degree is qualifying for grade GS–9. Completion of all requirements for a doctoral (Ph.D. or equivalent) degree is qualifying for GS–11.

Combinations of Professional Experience and Graduate Education

Equivalent combinations of professional experience and graduate education of the type described above are acceptable at each grade.

Alternate Requirements

Superior academic achievement at the baccalaureate level is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and one year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II (Instructions to Users) of this handbook must be met.

Student trainee experience gained as a student medical technologist in a CAHEA-accredited education program may be credited

on a month-for-month basis toward meeting the requirements for GS–7. (NOTE: A typical CAHEA-accredited program comprises twelve consecutive months of professional study, including didactic and practical instruction. Approximately six to seven months are devoted to lectures, laboratory study, demonstrations, and seminars covering theory and technique in clinical laboratory science. The other five to six months are devoted to clinical laboratory rotations. It is the latter, i.e., the period(s) of supervised work experience in a service laboratory—as distinguished from a student laboratory—which may be credited as student trainee experience.)

For positions at grade GS–7, medical technician experience equivalent to grade GS–5 or higher may be substituted on a month-for-month basis for the professional experience requirements described above, provided the candidate has met the basic requirements for all grades.

For positions above GS–7, *in in-service placement actions only,* medical technician experience may be accepted as equivalent to the professional experience required for the same grade when all of the conditions described under the heading "Evaluation of Technician Experience for Professional Positions" in section II of part II of this handbook are met.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook must be used in conjunction with this standard.

EMPLOYMENT INTERVIEW

Candidates who meet the education, experience, and other requirements may be requested to appear for an employment interview. The prospective employer interviews the candidate to observe and evaluate personal characteristics and qualifications which are essential to the successful performance of the duties of the position.

BASIS OF RATING

No written test is required. Candidates will be rated on the basis of the extent and quality of their experience and training. Ratings will be based on information furnished in application forms and any additional information that may be secured by qualifications inquiries made to supervisors, schools, and other references.

SELECTIVE FACTORS AND QUALITY RANKING FACTORS

For some specialized positions, only candidates who possess specific job-related knowledges, skills, abilities, or other worker characteristics may be qualified. For example, if a position requires an extensive knowledge of laboratory information management or highly developed skill in research techniques, that knowledge or skill may be used as a selective factor. A selective factor is a knowledge, skill, or ability that is essential for satisfactory performance on the job and represents an addition to the basic qualifications for a position. Justification for selective factors must show (a) how the selective factor is directly related to the duties and responsibilities of the position and (b) why possession of the knowledges, skills, or abilities identified as selective factors is necessary for successful performance in the position.

For some specialized positions, candidates who possess specific job-related knowledges, skills, abilities, or other worker characteristics may be better qualified candidates than those who are only basically qualified. Therefore, specific knowledges, skills, and abilities may be used as quality ranking factors. Justification for quality ranking factors must show (a) how the quality ranking factor is directly related to the duties and responsibilities of the position and (b) why possession of the desired knowledge, skill, or ability would predict superior performance.

Specializations, as indicated by clinical disciplines (hematology, chemistry, bacteriology, etc.) and/or functional division (administra-

tion, research, education) of work, while not recognized in the titling practices for this series or in this qualification standard, should be used for quality ranking or selective certification when the particular position to be filled clearly requires some specialized education and/or experience. For more information about selective and quality ranking factors, see chapter 332 of the Federal Personnel Manual.

GUIDE FOR EVALUATION OF EXPERIENCE AND TRAINING

Evaluation of professional experience and training can best be done by medical technologists of high standing in their field who have had some training in examining qualifications and appraising the significance of scientific achievement. In evaluating the relative qualifications of candidates, the following factors may be considered:

1. *Education:* Evaluating education is especially important for positions at GS-5/7. Distinctions in quality level should be made on the basis of the extent to which the courses contribute to the candidate's knowledge of the clinical laboratory sciences. (CAHEA-accredited education programs in medical technology usually include classroom lecture and laboratory instruction and practice in such areas as medical biochemistry, clinical parasitology, clinical mycology, physiology, clinical bacteriology, immunoserology, clinical chemistry, urinalysis, clinical immunohematology, clinical hematology, clinical serology, coagulation, virology, body-fluid analysis, clinical pathology correlation, literature research, administration and supervision, teaching methods, computers, and instrumentation.) Partial or total credit may be given for course work in related fields, depending on the degree to which it is related to medical technology work. Consideration should be given to the scope and the credits in the various courses as well as the candidate's achievement in such courses.

   For positions at GS-9 and above, evaluation of the undergraduate college training is less important than the consideration of graduate education and professional work experience gained subsequent to fulfilling the basic requirements. Graduate study is generally considered to be fully qualifying if it placed major emphasis on medical technology or on specific disciplines or areas of medical technology. Course work in related fields may be pertinent, provided it involves or has direct application to medical technology work. Evaluation of graduate study should be based on the extent to which the courses contribute to the candidate's total background of experience and training and their value in relation to the specific requirements of the position being filled. For example, for positions that require specialized knowledge of a particular area of medical technology such as microbiology or bacteriology, courses which concentrated in that specialized area may be more valuable than courses which cut across a number of areas of medical technology.
2. *Experience:* The evaluation of a candidate's work experience should consider its nature and significance, its relationship to the requirements of the position, and whether it has involved the performance of professional work of increasing difficulty and complexity, and the assumption of more responsibility. For example, for positions involving work in a number of areas of medical technology, "generalist" experience may warrant a higher quality rating then experience in a specialized area.
3. *Accomplishments:* Candidates may also be given extra credit for active membership in and presentations before professional organizations, participation in seminars and study groups, completion of special courses, patents, awards, publications, specialist certification/licensure from a recognized credentialing agency or State licensing body, or other similar activites and/or recognition. These accomplishments should be evaluated in terms of their relationship to the requirements of the position and their contribution to advancing knowledge in medical technology, rather than on grounds of quantity alone.
4. Because of the dynamic nature of this field (i.e., the constant growth of medical

knowledge, rapidly changing technology, and proliferation and increasing sophistication of tests), full professional competence requires that medical technologists keep abreast of new developments and interpretations by reading professional journals, attending professional society meetings, participating in in-service/continuing education programs, etc. Recency of education and experience, and evidence of continuing education in medical technology and related fields, are important elements of full professional competence and may be considered in the evaluation of candidates.

5. Candidates for positions at GS-9 and above should also be evaluated for such skills and abilities as:
   - —Ability to plan work and evaluate results;
   - —Skill in analyzing, adapting, or developing materials, criteria, procedures, protocols, programs, etc.;
   - —Skill in interpersonal relationships, e.g., leadership, flexibility, and persuasiveness;
   - —Skill in oral communications for explaining procedures to patients, teaching students and other professionals, and communicating with groups;
   - —Skill in written communications for developing technical reports, instructions, procedures, etc.;
   - —Ability to stay abreast of changes and new developments in the field;
   - —Ability to work independently, including originating workable solutions to problems.

FPM Supplement 335-1, Evaluation of Employees for Promotion and Internal Placement, contains information on agency use of evaluation procedures for promotion and in-service placement.

PHYSICAL REQUIREMENTS

Most positions involve some physical exertion such as prolonged standing, bending, and lifting of items such as supplies or instruments. Depending on the essential duties of the position, usable vision, color vision, hearing, or speech may be required, as well as manual dexterity to perform intricate test procedures. Ability to read printed material and handwriting is required in most positions, as is the ability to communicate effectively with patients and others. Many positions involve moderate risks or discomforts such as exposure to infectious agents or irritant chemicals. Safety precautions and protective clothing or gear such as coats, gloves, masks, goggles, or hoods may be required.

The following requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions:

Applicants and employees must have the capacity to perform the essential functions of the position without risk to themselves or others. In most cases, a specific physical condition or impairment will not automatically disqualify an applicant or employee. A physical condition or impairment may be disqualifying if the condition, for good medical reason, precludes assignment to or warrants restriction from the duties of the specific position. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation shall also be considered in determining an applicant's or employee's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

In positions where there is exposure to environmental agents for which there are occupational/environmental standards which require protective measures or medical surveillance, employees shall undergo initial and periodic medical evaluation in accordance with the surveillance requirements.

All positions involving Federal motor vehicle operation carry the additional requirements specified in Federal Personnel Manual Chapter 930.

Medical Technologist

Supervisory Medical Technologist

GS-5 and above

ADDENDUM

This amends the qualification standard for the Medical Technologist Series, GS-644, published in June 1984 and revised in October 1985. This amendment is a result of the settlement agreement reached between the Office of Personnel Management and the International Society for Clinical Laboratory Technology in July 1985. It is effective from April 1, 1986, through March 31, 1987, and should be filed with the qualification standard in Handbook X-118.

BASIC REQUIREMENTS FOR ALL GRADES

The following paragraph is added immediately after paragraph C under BASIC REQUIREMENTS FOR ALL GRADES:

D. A passing grade in the Proficiency Examination for Clinical Laboratory Technology (the "HHS Proficiency Examination") sponsored by the Department of Health and Human Services (formerly the Department of Health, Education, and Welfare). (NOTE: Under this provision, initial placement into this series must be by competitive appointment from a civil service certificate of eligibles or under a direct hire authority. This provision applies only to candidates for positions at grades GS-5/7; candidates for positions above GS-7 must have completed the requirements described in A, B, or C above.)

MEDICAL TECHNICIAN SERIES[1][2]

Medical Laboratory Aid, GS–1/3

Medical Technician, Supervisory Medical Technician, GS–4/12

Specializations at GS–4 and above:

Chemistry

Microbiology

Hematology

Blood Banking

DESCRIPTION OF WORK

Medical laboratory aids and medical technicians provide technical support and assistance to professional personnel (clinical pathologists, medical technologists, chemists, microbiologists, etc.) in one or a combination of the fields of clinical laboratory work. They perform such duties as preparing culture media, stains, and test solutions, cleaning and sterilizing glassware, making selected tests and examinations in such areas of work as chemistry, microbiology (bacteriology, mycology, parasitology, and/or serology), hematology, and blood banking, and preparing reports of findings of tests and examinations. The reports of findings of tests and examinations are used by physicians in their clinical diagnoses and in their treatment plans.

The duties of these positions vary with the specific type of assignment and with the grade of the position.

EXPERIENCE, TRAINING AND RELATED REQUIREMENTS

Grade GS–1

For grade GS–1, no experience, training, or education is required. Neither is there a requirement to pass a written test. The only requirement is that the applicant be interested in and willing to perform medical laboratory work and that there be evidence of likelihood of success in medical laboratory assignments.

Experience requirements

Except for the substitutions provided for below, candidates must have had qualifying experience in the amounts shown in the following table:

Minimum Years of Experience Required

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-1	0	0	0
GS-2	½	0	½
GS-3	1	0	1
GS-4	1½	½	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5
GS-8 and above	2	4	6

General experience is experience which provided a basic knowledge of laboratory procedures and equipment of chemical, biological, or medical laboratories *or* a background knowledge of the medical environment. Such experience may have been gained in the following types of positions:

(a) surgical technician;
(b) nursing assistant or practical nurse;
(c) physical science aid;
(d) pharmacy assistant or pharmaceutical laboratory assistant;
(e) laboratory helper.

Specialized experience is (*a*) technical medical laboratory support work such as performing laboratory tests and examinations (chemical, microbiologic, hematologic and blood banking) and preparing reports of findings *or* (*b*) technical support work, in a closely related field (e.g., biological laboratory technician work) which required application of the methods and techniques for the position to be filled.

Excess specialized experience may be substituted for general experience.

Supervisory positions

For supervisory positions →use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

[1] This standard has been approved by the Administrator of Veterans' Affairs for use within the Veterans' Administration under the provisions of Section 4105, Title 38, U.S.C.

[2] This standard supersedes the standard for this series which was issued in November 1963.

QUALITY AND LEVEL OF EXPERIENCE

For eligibility *at grade GS–4*, candidates must have had at least 6 months of specialized experience comparable in difficulty and responsibility to the GS–3 level.

For eligibility *at grade GS–5*, candidates must have had at least 1 year of experience comparable in difficulty and responsibility to the GS–4 level, of which at least 6 months must have been specialized experience.

For eligibility *at grades GS–6 through GS–9*, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years must have been comparable to the second lower grade in the Federal service.

For positions *at GS–7 and above*, at least 1 year of the specialized experience must be directly related to the duties of the specific position to be filled.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's total record of experience and education must show that he has the ability to perform the duties of the position to be filled.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

GS–2: Graduation from a full 4-year or senior high school curriculum may be substituted in full for the experience requirements at the GS–2 level. (High school education may not be substituted for any part of the experience requirements for GS–3 and above.)

GS–3: Successful completion of either of the following may be substituted for 1 year of experience, and meets in full the experience requirements at the GS–3 level:

(a) A full-time training course of approximately a year's duration in a medical or clinical laboratory assistant (or technician) school above the high school level which included instruction in chemistry, hematology, blood banking, and microbiology (including serology) and which, in addition, included supervised laboratory practice incident to the diagnostic process and the treatment of patients.

(b) One academic year of study in an accredited college, junior college or university that included or was supplemented by at least 12 semester hours in chemistry and/or in biological sciences.

GS–4: Successful completion of one of the following may be substituted in full for the 2 years of experience required at the GS–4 level (1½ general and ½ specialized):

(a) An associated degree course from an accredited junior college of which the 2d year of the 2-year program included successful completion of a training course of approximately a year's duration in a certified laboratory assistant school approved by a nationally recognized accrediting agency.

(b) One academic year of study as listed above for GS–3 paragraph (*b*) plus successful completion of the training course specified in paragraph (*a*) under GS–3.

(c) Two academic years of study in an accredited college, junior college, or university which included or was supplemented by at least 24 semester hours in chemistry and/or in biological sciences (any combination). Twelve semester hours of the required course work must have been directly applicable to the specialization for which application is made.

GS–5: Successful completion of all the requirements for the bachelor's degree in an accredited college or university (with major study in a field appropriate to the specialization of the position to be filled) may be substituted for 3 years of experience including 1 year of specialized experience and meets in full the experience requirements at the GS–5 level.

(TS 114)
May 1968
Reprinted without change
December 1975 (TS 156)

Appropriate education and training other than that outlined above, such as in military training programs or manpower development programs, will be granted credit, depending upon its applicability and extent. At any grade, post-high school education may be partially substituted for required experience at the rates of substitution indicated above.

The maximum amount of experience for which education of any kind may be substituted is three years.

WRITTEN TEST

Candidates for positions in grades GS–2 and GS–3 must pass a written test of abilities necessary to learn and perform the duties of these positions. At GS–3 the written test should be waived for applicants who qualify on the basis of a specialized laboratory assistant training course of approximately one year in a school approved by a nationally recognized accrediting agency or the equivalent, and who have met all the requirements for certification as a laboratory assistant.

BASIS OF RATING

Competitors for all positions will be rated on a scale of 100. The basis of rating will be:

For GS–1: An evaluation of the applicant's willingness to do simple and repetitive medical laboratory work; his dependability; and his ability to work safely.

For GS–2: Written test scores.

For GS–3: (a) Written test scores, *or*

(b) An evaluation of experience, education, and training. However, except for those applicants for whom the written test is waived, candidates will also have to attain a passing score on the written test.

For grades GS–4 and above: An evaluation of experience and training. Candidates must present evidence of ability to discharge the duties of the position applied for. The information for evaluating experience and training will be taken from the application form and on any additional information which may be obtained through references or inquiries.

INSERVICE PLACEMENT ACTIONS

Written test

For inservice placement actions, the test is *not* required and, therefore, may *not* be used on a pass-fail basis. In addition, the test may *not* be used in evaluating or ranking eligible employees unless the test is approved for this purpose by the Civil Service Commission (see section A–3, appendix A, *FPM Supplement 335–1*).

Credit for high school education

For inservice placement actions, high school education may be credited in accordance with the "add-on" rule, that is, the employee need show only that he has acquired the additional qualifications required for the new position. Thus, a high school graduate appointed at GS–2 needs six months of experience to qualify for a grade GS–3 position.

LATERAL REASSIGNMENT

The requirement for directly applicable specialized experience may be waived for lateral reassignment when:

1. The candidate has had experience which has provided a general familiarity with the work of the position for which he is being considered, *and*

2. A review of the candidate's experience and performance indicates possession of the necessary skills and abilities, and shows evidence of potential for successful performance of the work.

SELECTIVE PLACEMENT

Some positions may require the possession of particular knowledge and skills in a specialized area of work within a broad specialization (e.g., knowledge of serology or bacteriology within the field of microbiology) or on required competence in operation of equipment (e.g., a specific type of equipment which performs automatically a variety of tests on blood specimens). In such cases, consideration for these positions may be limited to those candidates whose records show the required training or experience.

SPECIAL REQUIREMENTS FOR POSITIONS INVOLVING PERSON-TO-PERSON WORK RELATIONSHIPS WITH PATIENTS

Medical laboratory technician positions may involve substantial contact with patients to collect blood and other specimens, with prospective blood donors to interview them and collect blood, etc. Duties performed require tact, courtesy, and capacity for person-to-person work relationships. In filling such positions, appointing offices should assure themselves by reference checks, personal interviews, or other appropriate means that candidates possess these qualities to the degree necessary for satisfactory performance of the duties of the positions.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 4. In addition, most positions require the ability to distinguish either basic or shades of colors.

GUIDE FOR EVALUATION OF CANDIDATES IN RELATION TO JOB REQUIREMENTS

The nature and quality of basic education or training are of most value in evaluating candidates at the lower levels. Education is of less significance at successively higher levels as compared with experience. The following aspects should be considered in evaluating education:

1. *The extent of preparation in the specializations in which the work is involved:* Courses in science vary greatly from college to junior college to specialized training schools for clinical laboratory assistants in number, variety, scope, and quality. Distinctions in quality can be made, over and above the courses meeting the basic requirements, on the extent to which the nature and scope of courses contribute to the specialized knowledge required for the position.
2. *Academic achievements:* Consideration may be given to achievement in science courses and in laboratory practice, to the candidate's general standing in his class, and to other academic achievements. These are of most use where other measures (e.g., evaluation of work experience) are not available.

Evaluation of experience

Evaluations of experience for either competitive or inservice placement actions can best be made by medical technologists, subject-matter specialists such as chemists, microbiologists and/or high grade technicians who have had training in examining qualifications and appraising the significance of technical achievement.

For technician positions the evaluation of experience logically includes appraisal of personal attributes and characteristics as demonstrated in performance on the job. This includes the degree and scope of technical knowledge, skills, and abilities possessed by the applicant which can be brought to bear upon duties in the position for which considered.

The following may be considered in the evaluation of experience:

1. *Nature and level of experience:* Experience which did not involve up-to-date techniques, procedures, and equipment or which did not demonstrate steady progression should obviously be considered to have less value than experience which did.
2. *Nature of collateral experience:* Collateral experience, including valuable technical experience in excess of requirements, and experience in closely related occupations (such as biological laboratory technician, physical science technician specializing in chemistry, and the like) may be given appropriate additional weight.
3. *Personal attributes, abilities, and characteristics:* Following are some of the more desirable abilities and personal characteristics for candidates for medical laboratory technician positions:
   a. Knowledge of specific scientific techniques, procedures, instruments and equipment involved in the given work situation;

b. Accuracy of work in performing tests and examinations and in reading and reporting findings;
c. Organizing ability in performing tests and examinations in an orderly and systematic fashion;
d. Reasoning ability;
e. Attention to details;
f. Dexterity.

Information in addition to that provided in the application form is needed for proper evaluation of qualifications for many medical technician positions. This includes evaluation by supervisors, teachers, and others in a position to provide information on accomplishmeints and personal characteristics, as well as the quality of performance on the job.

Supplemental applications may be used as necessary to obtain from the candidate the necessary information regarding college study, specialized training in the military services, or in clinical laboratory assistant or technician schools, etc.

PATHOLOGY TECHNICIAN SERIES [1]

GS–646 (p. 1)

Pathology Aid, GS–1/3

Pathology Technician, Supervisory Pathology Technician, GS–4/12

Cytology Technician, Supervisory Cytology Technician, GS–4/12

Histopathology Technician, Supervisory Histopathology Technician, GS–4/12

DESCRIPTION OF WORK

Cytology and histopathology aids and technicians supervise or perform technical support work which is subordinate to the work of anatomical pathologists or other professional personnel. Cytology technicians prepare and screen slides of specimens of various body fluids from patients in the search for abnormalities that are the warning signs of cancer and other cell abnormalities. Histopathology technicians cut and stain very thin sections of tissues which have been removed from the human body for microscopic examination by the pathologist to determine the presence of pathological conditions. Some histopathology technicians may also perform similar work in connection with animal tissues.

The duties vary with the specific type of assignment and with the grade of the position.

EXPERIENCE, TRAINING AND RELATED REQUIREMENTS

Grade GS–1

For grade GS–1, no experience, training, or education is required. Neither is there a requirement to pass a written test. The only requirement is that the applicant be interested in and willing to perform medical laboratory work and that there be evidence of likelihood of success in medical laboratory assignments.

Experience requirements

Candidates must meet the experience requirements specified below. (Successfully completed education or training of acceptable type, quality and duration may be substituted for experience.)

Minimum Years of Experience Required

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–1	0	0	0
GS–2	½	0	½
GS–3	1	0	1
GS–4	1½	½	2
GS–5	2	1	3
GS–6	2	2	4
GS–7	2	3	5
GS–8 and above	2	4	6

General experience is experience which provided a basic knowledge of laboratory procedures and equipment of biological, chemical, or medical laboratories *or* a background knowledge of the medical environment. Such experience may have been gained in the following types of positions:

(a) surgical technician;
(b) autopsy technician;
(c) nursing assistant or practical nurse;
(d) physical science aid;
(e) pharmacy assistant or pharmaceutical laboratory assistant;
(f) laboratory helper.

Specialized experience is anatomical pathology technician work in (*a*) cutting and staining very thin sections of human tissue specimens for microscopic examination; and/or in (*b*) testing and examining body fluids, etc. for abnormalities in cell structure, depending upon the requirements of the position to be filled.

Excess specialized experience may be substituted for general experience.

Supervisory positions

For supervisory positions →use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

QUALITY AND LEVEL OF EXPERIENCE

For eligibility *at grade GS–4*, candidates must have had at least 6 months of specialized experi-

[1] This standard has been approved by the Administrator of Veterans' Affairs for use within the Veterans' Administration under the provisions of Section 4105, Title 38, U.S.C.

ence comparable in difficulty and responsibility to the GS–3 level.

For eligibility *at grade GS–5*, candidates must have had at least 1 year of experience comparable in difficulty and responsibility to the GS–4 level of which at least 6 months must have been specialized experience.

For eligibility *at grades GS–6 through GS–9*, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's total record of experience and education must show that he has the ability to perform the duties of the position to be filled.

SUBSTITUTION OF EDUCATION OR TRAINING FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

GS–2: Graduation from a full 4-year or senior high school curriculum may be substituted in full for the experience requirements at the GS–2 level. (High school education may not be substituted for any part of the experience requirements for GS–3 and above.)

GS–3: Successful completion of either of the following may be substituted for 1 year of experience, and meets in full the experience requirements at the GS–3 level:

(a) A full-time training course of approximately a year's duration in a medical or clinical laboratory assistant (or technician) school above the high school level which included instruction in chemistry, hematology, blood banking, and microbiology (including serology), and which required supervised laboratory practice incident to the diagnostic process and treatment of patients.

(b) One academic year of study in an accredited college, junior college or university which included or was supplemented by at least 12 semester hours in chemistry and/or in appropriate fields of biological science.

GS–4: Successful completion of 2 academic years of study in an accredited college, junior college, university, or post high school vocational school which included or was supplemented by at least 24 semester hours in chemistry and/or in appropriate fields of biological science may be substituted for 2 years of experience including ½ year of specialized experience and meets in full the experience requirements at GS–4. At least 12 semester hours of the required course work must have been directly applicable to the specialization of the position to be filled.

GS–5: (a) Successful completion of all the requirements for the bachelor's degree in an accredited college or university with study in subjects or fields closely related to the position may be substituted for 3 years of experience (including 1 year of specialized experience) and fully meets the experience requirements for GS–5.

(b) The following combination of education, training and experience may be substituted in full for the 3 years of experience required (2 general, 1 specialized) for grade GS–5:

(1) Successful completion of 2 academic years of study in an accredited college, junior college or university, which included or was supplemented by at least 24 semester hours in chemistry and/or in appropriate fields of biological science; *and*

(2) Successful completion of a 12-month program of education, training, and supervised

experience in cytotechnology or in histopathology which has been approved by a nationally recognized accrediting agency.

Appropriate education and training other than that outlined above, such as in military training programs or manpower development programs, will be granted credit, depending upon its applicability and extent.

At any grade, post high school education may be partially substituted for required experience at the rates of substitution indicated above.

The maximum amount of experience for which education or training of any kind may be substituted is 3 years.

WRITTEN TEST

Candidates for positions in grades GS-2 and GS-3 must pass a written test of abilities necessary to learn and perform the duties of these positions. The written test may be waived for in-service placement actions, but not for appointments outside the register.

BASIS OF RATING

Competitors for all positions will be rated on a scale of 100. The basis of rating will be:

For GS-1: An evaluation of the applicant's willingness to do simple and repetitive medical laboratory work; his dependability; and his ability to work safely.

For GS-2: Written test scores.

For GS-3: (a) Written test scores, *or*

(b) An evaluation of education, experience and training only, after the candidate has qualified by attaining a passing score on the written test.

For GS-4 and above: An evaluation of experience and training. Candidates must present evidence of ability to perform the duties of the position applied for. The information for evaluating experience and training will be taken from the application form and any additional information which may be obtained through reference inquiries.

IN-SERVICE PLACEMENT ACTIONS

When required in the standard for competitive actions, the written test should be waived in in-service placement actions, but not for appointments outside the register.

LATERAL REASSIGNMENT

The requirement for directly applicable specialized experience may be waived for lateral reassignment when:

1. The candidate has had experience which has provided a general familiarity with the work of the position for which he is being considered, and
2. A review of the candidate's experience and performance indicates possession of the necessary skills and abilities, and shows evidence of potential for successful performance of the work.

SPECIAL REQUIREMENTS FOR POSITIONS INVOLVING PERSON-TO-PERSON WORK RELATIONSHIPS WITH PATIENTS

Some cytology technician positions may involve contact with patients to take smears and to do gastric washings to obtain specimens for cytologic study. Duties performed require tact, courtesy, and capacity for effective person-to-person work relationships. In filling such positions, appointing offices should assure themselves by references checks, personal interviews, or other appropriate means that candidates possess these qualities to the degree necessary for satisfactory performance of the duties of such positions.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 4. In addition, ability to distinguish shades of colors is required.

GUIDE FOR EVALUATION OF QUALIFICATIONS IN RELATION TO JOB REQUIREMENTS

Evaluation of education or training

The nature and quality of basic education or training are the most important considerations in evaluating candidates at the lower levels. At higher levels, education is of less significance than experience. The following aspects should be considered in evaluating education:

1. *The extent of preparation in the specializations in which the work is involved:* In the schools (college, junior colleges and specialized training schools for technicians) cytology and histopathology courses in science vary greatly in number, variety, scope, and quality. Distinctions in quality can be made on the extent to which the nature and scope of courses contribute to the specialized knowledge required for the position.
2. *Academic achievements:* Consideration may be given to achievement in science courses and in laboratory practice, the candidate's standing in his class, and other academic achievements. These are of most use where other measures (e.g., evaluation of work experience) are not available.

Evaluation of experience

Evaluations of experience for both competitive and in-service placement actions can best be made by professional personnel in the laboratory and/or by high grade technicians who have had training in examining qualifications and appraising the significance of technical achievement in these fields of work.

For technician positions the evaluation of experience logically includes appraisal of personal attributes and characteristics as demonstrated in performance on the job. This includes the degree and scope of technical knowledge, skills, and abilities possessed by the applicant which can be brought to bear upon duties in the position for which considered.

The following may be considered in the evaluation of experience:

1. *Nature and level of experience:* Experience which did not involve up-to-date techniques, procedures, and equipment or which did not demonstrate steady progression should obviously be considered to have less value than experience which did.
2. *Nature of collateral experience:* Collateral experience, including valuable technical experience in excess of requirements, and experience in related occupations such as biological laboratory technician, clinical laboratory technician, and autopsy assistant may be given appropriate additional weight.
3. *Personal attributes, abilities, and characteristics:* Following are some of the desirable abilities and personal characteristics for candidates for anatomical pathology technician positions:
   a. Knowledge of specific scientific techniques, procedures, instruments and equipment involved in the given work situation;
   b. Accuracy of work in performing procedures and examinations and in reading and reporting findings;
   c. Organizing ability in performing work in an orderly and systematic fashion;
   d. Reasoning ability;
   e. Attention to details;
   f. Dexterity.

Certain information in addition to that provided in the application form is needed for proper evaluation of qualifications for many positions in the Pathology Technician Series, GS–646. This includes evaluations by supervisors, teachers, and others in a position to provide information on accomplishments and personal characteristics, as well as the quality of performance on the job, or in school.

Supplemental applications may be used as necessary to obtain from the candidate the necessary information regarding college study, specialized training in the military services, or in technician schools, etc.

DIAGNOSTIC RADIOLOGIC[1] TECHNICIAN/TECHNOLOGIST

This qualification standard supersedes the portions of the qualification standard for the GS-647 series issued in March 1969 which deal with diagnostic radiology work.

DESCRIPTION OF WORK

Diagnostic Radiologic Technicians and Technologists perform procedures and examinations in hospitals or clinics under the direction of radiologists and other medical officers to produce radiographic studies used in medical diagnosis and treatment. They receive and interpret requests or instructions for radiologic procedures. They set up X-ray rooms, assuring that needed accessory equipment is ready. They place the patient in the positions to obtain the views requested. They refer to guidelines to calculate the correct exposure factors of time, distance, kilovoltage, and milliamperage and operate the radiographic equipment in order that the specified portion of the body or extremities receives the correct calculated exposure. They assist radiologists during fluoroscopic and special procedures. Utmost care is taken at all times to minimize the patient's exposure to radiation by using proper films, filters, screens, etc.; by restricting the beam through use of cones, cylinders, or diaphragms; and by using optimum exposure setting. They recognize and report malfunctioning equipment, and perform clerical duties such as recording radiographic exposures on the patient's charts, identifying X-ray films with patient's name, and recording technical factors and materials used in studies. They sometimes develop X-ray films.

EXPERIENCE, TRAINING AND RELATED REQUIREMENTS

As a minimum, Diagnostic Radiologic Technicians and Technologists must have knowledge of such subjects as: radiation protection standards and practices; basic human anatomy and physiology; basic physics including concepts of energy, electric power and circuits, and the properties of X-rays; radiographic exposure techniques; and radiographic positioning. The medical community considers that the preferred method of gaining such knowledge as well as skill in applying it, is through completion of a two year or longer training course in diagnostic radiologic technology which has been approved by the American Society of Radiologic Technologists, the American Medical Association, or a state departm \t of health. The medical community also considers that an applicant who is a Registered Technologist has demonstrated possession of this knowledge. Applicants who have not completed such a course nor become registered technologists should show evidence of equivalent knowledge such as specific courses attended and/or work assignments which demonstrate that the applicant possesses and uses the knowledge and skill.

EXPERIENCE REQUIREMENTS

Minimum Years of Experience Required

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-3	1	0	1
GS-4	1	1	2
GS-5	1	2	3
GS-6	1	3	4
GS-7	1	4	5
GS-8 and above	1	5	6

General experience is experience which has provided some familiarity with medical care, anatomy and physiology, laboratory procedures, and/or radiographic equipment. It may have been gained in one or a combination of types of experience *such as* the following:

a. Training and experience as therapeutic radiologic technician/technologist, nuclear medicine technician, or diagnostic ultrasound technician.

b. Training and experience as a practical nurse, nurse's aid, nursing assistant, student nurse, or registered nurse.

[1] This standard has been approved by the Administrator of Veterans Affairs for use within the Department of Medicine and Surgery under the provisions of Section 4105, Title 38, U.S.C.

c. Experience as a medical aid, medical technician, laboratory technician, laboratory assistant, or similar types of positions in a medical, clinical, college, or industrial laboratory.
d. Service in the medical corps in the armed forces where the duties were essentially medical in character.
e. Experience in technical processes related to manufacture and maintenance of radiographic equipment.
f. Experience as a radiology technician in a nonmedical capacity.
g. Experience similar to the preceding types types which has provided the same general knowledges and skills.

Specialized experience is experience in the operation of diagnostic radiology equipment under the direction of radiologists or other medical officers to perform duties covered under the paragraph headed description of work. Any excess of specialized experience may be applied toward the general experience knowledges and skills.

SUBSTITUTION OF EDUCATION AND TRAINING FOR EXPERIENCE

1. Successful completion of at least 1 year of study in an accredited junior college, college, or university with at least 6 semester hours in one or any combination of the following: Anatomy, biology, chemistry, physics, physiology, or related courses, may be substituted for 1 year of general experience.

2. Successful completion of a course for (a) medical technicians, (b) hospital corpsmen, (c) medical service specialists, or (d) hospital training, obtained in a training program given by the armed forces or the U.S. Maritime Service under close medical and professional supervision, may be substituted on a month-for-month basis for up to a total of 1 year of general experience.

3. The successful completion of a full-time course for diagnostic radiologic technicians under professional direction may be substituted for up to a maximum of 2 years of specialized experience through one or a combination of the following courses:

(a) Successful completion of a full-time training course under professional direction of at least 24 months' duration in a school approved by the American Medical Association, the U.S. Commissioner of Education, or a state or territory of the United States may be substituted for up to 2 years of specialized experience.
(b) Successful completion of a course of at least 12 months' duration for medical radiologic technicians in a hospital, clinic, or medical school other than those approved by the American Medical Association, the U.S. Commissioner of Education, or a state or territory of the United States may be substituted for up to 1 year of specialized experience. No substitution is permitted for partially completed courses.
(c) Successful completion of a course for medical radiologic technicians in the armed forces may be substituted on a month-for-month basis up to a maximum of 1 year of specialized experience. If the course is approved by the American Medical Association it may be substituted on a month-for-month basis up to a maximum 2 years of specialized experience. No substitution is permitted for partially completed courses.
(d) Successful completion of a full-time training course in one of the specialized areas within the field of diagnostic radiology may be substituted on a month-for-month basis for up to a maximum of 1 year if the course is under professional direction in a school approved by the American Medical Association, the U.S. Commissioner of Education, or a state or territory of the United States.
(e) Appropriate education and training other than that outlined above, such as in "new careers" training programs,

manpower development programs, and inservice training programs will be granted credit depending upon its applicability and extent.

QUALITY OF EXPERIENCE

For positions at any grade, the required amount of experience will not in itself be accepted as proof of qualification. The applicant's record of experience and training must be documented and demonstrate the capacity *to perform the duties of the position.* Current registry by a state licensing board or a medical society sponsored registry board in addition to a satisfactory record of experience is a good indication that the quality of experience is acceptable. In addition, applicants must show:

For GS–4, one year of specialized experience at a level of difficulty comparable to grade GS–3 in the Federal service.

GS–5, one year of specialized experience at a level of difficulty comparable to grade GS–4 in the Federal service.

GS–6 and above, one year of specialized experience at a level of difficulty comparable to the next lower grade level in the Federal service, or two years of specialized experience comparable to the second lower grade level.

SUPERVISORY POSITIONS

For supervisory positions, use the qualification standard for Supervisory Positions in General Schedule Occupations in part III of the handbook in conjunction with this standard.

WRITTEN TEST

A written test of abilities necessary to learn and perform the duties of these positions is required for competitive appointments and for appointments outside the register at grade GS–3 except that the test should be waived for applicants who meet the experience requirement on the basis of a training course for diagnostic radiologic technicians of the nature described above as an acceptable substitution for specialized experience.

For inservice placement actions, the test is not required and, therefore, may not be used on a pass-fail basis. In addition, the test may not be used in evaluating or ranking eligible employees unless the test is approved for this purpose by the Office of Personnel Management. (See section A–3, appendix A, FPM Supplement 335–1).

PERSONAL CHARACTERISTICS

Applicants should possess the ability to work effectively as part of a team, ability to deal with patients in a tactful and sympathetic manner, and ability to exercise good judgment. For positions involving oral communication with patients, applicants should demonstrate ability to convey ideas fully and accurately through oral presentation and discussion.

BASIS OF RATING

Competitors for all positions will be rated on the quality and extent of their experience, education, and training in relationship to the duties of the positions. Rankings will be made:

For GS–3, when the written test is required, on the basis of written test results plus credit points for high school science or mathematics courses.

For GS–4 and above and for GS–3 when the written test is not required, on the extent and quality of training and experience relevant to the duties of the position.

Information upon which to make ratings will be obtained from application forms, and from any other information such as inquiries which may be supplied to or requested by OPM. Specialized experience and training gained within the past five years is preferred.

PHYSICAL REQUIREMENTS

Applicants must be physically able to perform the duties of the position efficiently and without hazard to themselves or to others. Good

distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, corrective lenses permitted. The ability to distinguish basic or shades of colors is required. Ability to hear the conversational voice, with or without a hearing aid is required. Applicants must possess emotional and mental stability. An amputation of leg or foot will not disqualify an applicant for appointment, although it may be necessary that this condition be compensated by use of satisfactory prosthesis. The presence of physical conditions which would be aggravated by the environmental conditions of these positions will ordinarily disqualify an applicant for appointment.

THERAPEUTIC RADIOLOGIC[1] TECHNICIAN/TECHNOLOGIST

This qualification standard supersedes the portions of the qualification standard for the GS–647 series issued in March 1969 which deal with therapeutic radiology work.

DESCRIPTION OF WORK

Under the direction of radiotherapists or other medical officers, Therapeutic Radiologic Technicians and Technologists operate radiotherapy equipment including cobalt 60, supervoltage and megavoltage units to administer radiation therapy treatment. They receive and interpret requests or instructions for treatment, checking prescription, diagnosis, chart and patient identification. They set up the treatment rooms assuring that field size, treatment distance, protection devices and other equipment are according to prescription. They transfer and position patients, deliver prescribed dosage of radiation, and observe patients for unusual reactions and events. They manufacture molds, beam directional shells, etc. They may prepare interstitial and intracavity sources for physician's use. Some technicians and technologists draw isodose patterns and operate radiation therapy simulator equipment.

EXPERIENCE, TRAINING AND RELATED REQUIREMENTS

As a minimum, Therapeutic Radiologic Technicians and Technologists must have knowledge of such subjects as: anatomy, histology, biology, pathology, oncology and radiotherapy as well as essential features of the most common cancers. The medical community considers that the preferred method of gaining such knowledge, as well as skill in applying it, is through completion of a two year or longer training course in radiotherapeutic technology which has been approved by the American Society of Radiologic Technologists, the American Medical Association, or a state department of health. The medical community also considers that an applicant who is a Registered Technologist has demonstrated possession of this knowledge. Applicants who have not completed such a course nor become registered technologists should show evidence of equivalent knowledge such as specific courses attended and/or work assignments which demonstrate that the applicant possesses and uses the knowledge and skill.

EXPERIENCE REQUIREMENTS

Minimum Years of Experience Required

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–3	1	0	1
GS–4	1	1	2
GS–5	1	2	3
GS–6	1	3	4
GS–7	1	4	5
GS–8 and above	1	5	6

General experience is experience which has provided some familiarity with medical care, anatomy and physiology, laboratory procedures, and/or radiotherapy or radiographic equipment. It may have been gained in one or a combination of types of experience such as the following:

a. Training and experienced as diagnostic radiologic technician/technologist or nuclear medicine technician.
b. Training and experience as a practical nurse, nurse's aid, nursing assistant, student nurse, or registered nurse.
c. Experience as a medical aid, medical technician, laboratory technician, laboratory assistant, or similar types of positions in a medical, clinical, college, or industrial laboratory.
d. Service in the medical corps in the armed forces where the duties were essentially medical in character.
e. Experience in technical processes related to manufacture and maintenance of radiographic or radiotherapy equipment.
f. Experience as a radiology technician in a non-medical capacity.

[1] This standard has been approved by the Administrator of Veterans Affairs for use within the Department of Medicine and Surgery under the provisions of Section 4105, Title 38, U.S.C.

g. Experience similar to the preceding types which has provided the same general knowledges and skills.

Specialized experience is experience in the operation of therapeutic radiology equipment under the direction of radiotherapists or other medical officers. Any excess of specialized experience may be applied toward the general experience knowledges and skills.

SUBSTITUTION OF EDUCATION AND TRAINING FOR EXPERIENCE

1. Successful completion of at least 1 year of study in an accredited junior college, college, or university with at least 6 semester hours in one or any combination of the following: Anatomy, biology, chemistry, physics, physiology, or related courses, may be substituted for 1 year of general experience.

2. Successful completion of a course for (a) medical technicians, (b) hospital corpsmen, (c) medical service specialists, or (d) hospital training, obtained in a training program given by the armed forces or U.S. Maritime Service under close medical and professional supervision, may be substituted on a month-for-month basis for up to a total of 1 year of general experience.

3. The successful completion of a full-time course for therapeutic radiology technicians under professional direction may be substituted for up to a maximum of 2 years of specialized experience through one or a combination of the following courses:

a. Successful completion of a full-time training course in radiation therapy of at least 24 months' duration in a school approved by the American Medical Association, the U.S. Commissioner of Education, or a state or territory of the United States may be substituted for up to 2 years of specialized experience.

b. Successful completion of a full-time training course in diagnostic radiologic technology of at least 24 months' duration in a school approved by the American Medical Association, an agency recognized by the U.S. Commissioner of Education or a state or territory of the United States *plus* successful completion of a full-time course of study in radiation therapy of at least 12 months' duration in a school approved as above may be substituted for up to two years of specialized experience and 1 year of general experience.

c. Successful completion of a course of at least 12 months' duration for therapeutic radiologic technicians in a hospital, clinic, or medical school other than those approved by the American Medical Association, the U.S. Commissioner of Education, or a state or territory of the United States may be substituted for up to 1 year of specialized experience. No substitution is permitted for partially completed courses.

d. Successful completion of a course for therapeutic radiologic technicians in the armed forces may be substituted on a month-for-month basis up to a maximum of 1 year of specialized experience. If the course is approved by the American Medical Association it may be substituted on a month-for-month basis up to a maximum of 2 years of specialized experience. No substitution is permitted for partially completed courses.

e. Successful completion of a full-time training course in one of the specialized areas within the field of therapeutic radiology may be substituted on a month-for-month basis for up to a maximum of 1 year if the course is under professional direction in a school approved by the American Medical Association, the U.S. Commissioner of Education, or a state or territory of the United States.

f. Appropriate education and training other than that outlined above, such as in "new careers" training programs, manpower development programs, and inservice training programs will be granted credit depending upon its applicability and extent.

QUALITY OF EXPERIENCE

For positions at any grade, the required amount of experience will not in itself be accepted as proof of qualification. The applicant's record of experience and training must have demonstrated the capacity to *perform the duties of the position.* Registry by a state licensing board or a medical society sponsored registry board in addition to a satisfactory record of experience is a good indication that the quality of experience is acceptable. In addition, applicant's must show:

For GS–4, one year of specialized experience at a level of difficulty comparable to grade GS–3 in the Federal service.

GS–5 one year of specialized experience at a level of difficulty comparable to grade GS–4 in the Federal service.

GS–6 and above, one year of specialized experience at a level of difficulty comparable to the next lower grade level in the Federal service, or two years of specialized experience comparable to the second lower grade level.

SUPERVISORY POSITIONS

For supervisory positions, use the qualification standard for Supervisory Positions in General Schedule Occupations in Part II of the handbook in conjunction with this standard.

WRITTEN TEST

A written test of abilities necessary to learn and perform the duties of these positions is required for competitive appointments and for appointments outside the register at grade GS–3 except that the test should be waived for applicants who meet the experience requirement on the basis of a training course for therapeutic radiologic technicians of the nature described above as an acceptable substitution for specialized experience. For inservice placement actions, the test is not required and, therefore, may not be used on a pass-fail basis. In addition, the test may not be used in evaluating or ranking eligible employees unless the test is approved for this purpose by the Office of Personnel Management. (See FPM chapter 335).

PERSONAL CHARACTERISTICS

Applicants should possess the ability to work effectively as part of a team, ability to deal with patients in a tactful and sympathetic manner, and ability to exercise good judgment. For positions involving oral communication with patients, applicants should demonstrate ability to convey ideas fully and accurately through oral presentation and discussion.

BASIS OF RATING

Competitors for all positions will be rated on the quality and extent of their experience, education, and training in relation to the duties of the positions. Ranking will be made:

For GS–3, when the written test is required, on the basis of written test results plus credit points for high school science or mathematics courses.

For GS–4 and above, and for GS–3 when the written test is not required, on the basis of the extent and quality of training and experience relative to the duties of the position.

Information upon which to make ratings will be obtained from application forms, and from any other information such as inquiries which may be supplied to or requested by OPM. Specialized experience and training gained within the past five years is preferred.

PHYSICAL REQUIREMENTS

Applicants must be physically able to perform the duties of the position efficiently and without hazard to themselves or to others. Good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, corrective lenses permitted. The ability to distinguish basic or shades of colors is required. Ability to hear the conversational voice, with or without a hearing

aid is required. Applicants must possess emotional and mental stability. An amputation of leg or foot will not disqualify an applicant for appointment, although it may be necessary that this condition be compensated by use of satisfactory prosthesis. The presence of physical conditions which would be aggravated by the environmental conditions of these positions will ordinarily disqualify an applicant for appointment.

MEDICAL MACHINE TECHNICIAN SERIES[1]

For Nonsupervisory and Supervisory Positions in the Medical Machine Technician Occupation GS-649-1/9

Medical Machine Aid
Cardiac Catheterization Technician
Electrocardiograph Technician[2]
Electroencephalograph Technician[3]
Heart-Lung Machine Technician
→ Hemodialysis Technician ←
Hyperbaric Chamber Technician
Inhalation Therapy Technician
Pulmonary Function Technician
Medical Machine Technician

DESCRIPTION OF WORK

Medical machine aids and technicians provide technical support and assistance to physicians or other professional personnel and operate one or more kinds of medical machines for diagnostic examination or therapeutic purposes. In addition to operating the machines, they perform other duties such as preparing and positioning the patient for the particular diagnostic examination or treatment, calibrating the machine and recording devices, recognizing the patient's lack of response or adverse reactions to the examination or treatment procedures and informing the physicians of these problems, and preparing reports of examinations and treatments. The reports of examinations and treatments are used by physicians in their clinical diagnoses and in their treatment plans.

Technicians must have a knowledge of human anatomy, chemistry, or physiology as well as a knowledge of the techniques of operation and routine maintenance of the machine.

The duties of these positions vary with the specific type of assignment and with the grade of the position.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Grade GS-1

For grade GS-1, no experience, training, or education is required. No written test is required. Applicants must be interested in and willing to perform medical machine aid and technician work and show evidence of likelihood of success in medical machine aid and technician assignments.

Experience requirements

Except for the substitutions provided for below, candidates must have had qualifying experience in the amounts shown in the following table:

Minimum Years of Experience Required

Grade	Total experience (years)	General experience (years)	Specialized experience (years)
GS-1	0	0	0
GS-2	½	½	0
GS-3	1	1	0
GS-4	2	1½	½
GS-5	3	2	1
GS-6	4	2	2
GS-7	5	2	3
GS-8 and above	6	2	4

General experience

This is experience which has provided some familiarity with medical or dental care; a basic knowledge of procedures and equipment of biological, chemical, or medical laboratories; *or* some knowledge of mechanical, electric, or electronic equipment. This experience may have been gained in any one or any combination of types of experience such as the following:

a. Practical nurse, nurse's aide, nursing assistant, surgical or operating room technician, or dental assistant.
b. Medical technician, laboratory technician, laboratory assistant or similar types of positions in a medical, clinical, college or industrial laboratory.
c. Physical science laboratory aid.
d. Experience in the technical processes related to the manufacture and maintenance of oxygen therapy equipment or to the manufacture and maintenance of

[1] This standard has been approved by the Administrator of Veterans' Affairs for use within the Veterans' Administration under the provisions of section 4105, title 38, U.S.C.

[2] The title "Electrocardiograph Technician" is sometimes abbreviated to "EKG Technician."

[3] The title "Electroencephalograph Technician" is sometimes abbreviated to "EEG Technician."

oxygen and other gases for medical and/or industrial uses.

e. Electrician, radar operator, electronics technician, or x-ray technician in an industrial capacity.

f. Experience as a salesman in the demonstration of medical equipment typical of this field or of a related nature to hospital or clinical personnel or to physicians.

Depending upon the exact nature of the duties performed and the extent to which experience in such fields offered the applicant an opportunity to acquire knowledge of some of the knowledges, techniques, and principles related to the particular field of medical machine technician work, partial or full credit may be given toward meeting the general experience requirement.

Specialized experience

This is experience in operating, supervising the operation of, or instructing in the operation of equipment related to the particular specialization of the job to be filled. Excess specialized experience may be applied toward the general experience requirements.

In addition, experience gained in the operation of equipment in a specialization very closely allied to the specialization for which application is made, may be credited as specialized experience on a month-for-month basis not to exceed one year of specialized experience.

Also, experience gained in the operation of equipment peculiar to a particular specialization in a biological animal laboratory may be credited as specialized experience for that particular specialization only on a month-for-month basis not to exceed one year of specialized experience.

Supervisory positions

For supervisory positions, use the qualification standard for Supervisory Positions in General Schedule Occupations, in part III of this handbook, in conjunction with this standard.

QUALITY AND LEVEL OF EXPERIENCE

For eligibility *at grade GS–4*, candidates must have had at least six months of specialized experience comparable in difficulty and responsibility to the GS–3 level in the Federal service.

For eligibility *at grade GS–5*, candidates must have had at least one year of experience comparable in difficulty and responsibility to the GS–4 level in the Federal service, of which at least six months must have been specialized experience.

For eligibility *at grades GS–6 and above*, at least one year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or two years comparable to the second lower grade in the Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's total record of experience and education must show that he has the ability to perform the duties of the position to be filled.

SUBSTITUTION OF EDUCATION AND TRAINING FOR EXPERIENCE

Successfully completed education and training of acceptable type and quality may be substituted for experience requirements as specified below, for a maximum of three years of experience (two years of general and one year of specialized experience).

a. The successful completion of a full 4-year or senior high school curriculum or General Educational Development (GED) high school equivalency certificate may be substituted for six months of general experience. High school education or GED high school equivalency certificate may not be substituted for any part of the experience requirements at GS–3 and above.

b. The successful completion of an approved program in practical nursing or in operating room or surgical technician work of at least nine months in length may be substituted for one year of general experience.

c. Successful completion of 1 academic year of study in an accredited junior college, college, or university with at least 6 semester hours in any combination of scientific subjects such as biology, anatomy, physiology, chemistry, medical technology, or physics may be substituted for 1 year of general experience.

d. Two years of academic study as described in c above, which included at least 12 semester hours in any combination of the subjects as listed, may be substituted for 2 years of experience, including ½ year of specialized experience, and meets in full the experience requirements for GS–4. At least 6 semester hours of the required course work must have been directly pertinent to the specialization of the job to be filled.

e. Successful completion of all the requirements for the bachelor's degree which was in a major field of study appropriate to the specialization for which application is made, or which included 12 semester hours per year in pertinent courses, may be substituted for 3 years of experience, including 1 year of specialized experience, and meets in full the experience requirements for GS–5.

f. For Inhalation Therapy Technician positions, or those in closely allied specializations, successful completion of a full training course of at least 9 months in length in a school for inhalation therapy technicians approved by a nationally recognized accrediting agency may be substituted for 1 year of *specialized experience*.

g. For Inhalation Therapy Technician positions, or those in closely allied specializations, successful completion of a full training course of 2 academic years in a school for inhalation therapy technicians approved by a nationally recognized accrediting agency may be substituted for 2 years of *specialized experience*.

h. For Inhalation Therapy Technician positions, or those in closely allied specializations, successful completion of a full-time training course for inhalation therapy technicians under professional direction in any other training institution above the high school level, which includes both classroom instruction and substantial supervised clinical experience under professional direction in inhalation therapy in a hospital or clinic, may be substituted for specialized experience on a month-for-month basis up to a maximum of 1 year. Comparable programs with other titles (e.g., oxygen therapy technician) are acceptable.

i. Successful completion of training courses in other specializations or medical radiology technician training may be substituted for specialized experience where the training is directly appropriate to the specialization, on a month-for-month basis for a maximum of 1 year of specialized training.

Education and training other than that outlined above (e.g., training acquired while serving in the Armed Forces of the United States, in the Job Corps, and in manpower development programs), will be allowed appropriate credit for either general or specialized experience, depending upon its applicability and extent.

The maximum amount of experience for which education or training of any kind may be substituted is 3 years.

WRITTEN TEST

Candidates for positions in grades GS–2 and GS–3 must pass a written test of abilities necessary to learn and perform the duties of these positions. At GS–3 the written test may be waived for applicants who qualify on the basis of a specialized training course in the operation of the type of machine equipment involved in the position to be filled. The written test should also be waived for all in-service placement ac-

tions but not for appointments outside the register.

BASIS OF RATING

Competitors for all positions will be rated on the quality and extent of experience, education, or training in relationship to the duties of the positions. Ranking will be made on the following basis:

For GS–1: An evaluation of the applicant's willingness to do simple and repetitive medical machine aid work; his dependability; and his ability to work safely.

For GS–2: Written test scores.

For GS–3: (*a*) Written test scores, *or*
(*b*) An evaluation of experience, education, and training. Candidates who are required to take the written test must attain an eligible rating on the written test.

For GS–4 and above: An evaluation of experience, education and training in relation to the duties of the position.

The information for evaluating experience, education, and training will be taken from the application form and any additional information which may be obtained through reference inquiries to supervisors, teachers, and others.

IN-SERVICE PLACEMENT ACTIONS

Written test

Where required in the standard for competitive actions, the written test should be waived in in-service placement actions, but not for appointments outside the register.

Credit for high school education

In in-service placement actions, successfully completed high school education may be credited in accordance with the "add-on" rule, section 3–1(b), FPM chapter 337.

Waiving directly applicable specialized experience requirement at GS–4 and GS–5

For in-service placement actions only, the requirement for directly applicable specialized experience at grades GS–4 and GS–5 may be waived for lateral reassignment and promotion of nursing assistants, medical technicians, biological laboratory assistants, etc., provided:

1. The candidate has had experience which has provided a general familiarity with the work of the position for which he is being considered; and,
2. A review of the candidate's experience and performance indicates that he possesses the necessary skills and abilities, and evidences definite potential for successful performance of the work.

SELECTIVE PLACEMENT

Some positions may require particular knowledges and skills. In such instances, consideration may be limited to those candidates whose records show that they have the required knowledges and skills. This requirement may be for knowledges and skills in a specialized area of work within a specialization (e.g., knowledge and skill in electrocorticography in the field of electroencephalograph technician work) or for competence in operation of a particular kind of machine or equipment (e.g., a Medical Machine Technician position may require training or experience in operating machines or devices used in thermography, diagnostic ultrasound, etc.).

SPECIAL REQUIREMENTS FOR POSITIONS INVOLVING PERSON-TO-PERSON WORK RELATIONSHIPS WITH PATIENTS

Some positions may involve substantial contact with patients to gain their cooperation in the examination or therapeutic procedures, to set them at ease, and to explain the procedure as necessary. Duties performed require tact, courtesy, and capacity for person-to-person work relationships. In filling such positions, ap-

pointing offices should assure themselves by reference checks, personal interviews, or other appropriate means, that applicants possess the qualities to the degree necessary for satisfactory performance of the duties of the positions.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 5. In addition, some positions may require the ability to distinguish either basic or shades of colors, and applicants must possess emotional and mental stability.

GUIDE FOR EVALUATION OF CANDIDATES IN RELATION TO JOB REQUIREMENTS

Evaluation of education or training

The nature and quality of basic education or training are of most value in evaluating candidates at the lower levels. Education is typically of less significance at GS–6 and above as compared with experience. The following aspects should be considered in evaluating education:

1. *The extent of preparation in the specializations in which the work is involved*

   Courses in science vary greatly from college to junior college to specialized training schools for medical machine technicians in number, variety, scope, and quality. Distinctions in quality can be made, over and above the courses meeting the basic requirements, on the extent to which the nature and scope of courses provide the kind of specialized knowledge required for the position.

2. *Academic achievements*

   Consideration may be given to achievement in science courses, or in technical schools and in laboratory practice or in supervised clinical practice; the candidate's general standing in his class; and other academic achievements. These are of most use where other measures (e.g., evaluation of work experience) are not available.

Evaluation of experience

Evaluations of experience for either competitive or in-service placement actions can best be made by professional personnel and/or high level technicians, who have had training in evaluating qualifications and appraising the significance of technical achievement.

For technician positions the evaluation of experience logically includes appraisal of personal attributes and characteristics as demonstrated in performance on the job. This includes the degree and scope of the applicant's technical knowledge, skills, and abilities which can be brought to bear upon duties in the position to be filled.

The following may be considered in the evaluation of experience:

1. *Nature and level of experience*

   Experience which did not involve up-to-date techniques, procedures, and equipment, or which did not demonstrate steady progression, should be considered to have less value than experience which did.

2. *Nature of collateral experience*

   Collateral experience, including valuable technical experience in excess of requirements, and experience in related occupations (such as nursing assistant, medical technician, biological laboratory technician, physical science technician, and the like) may be given appropriate additional weight.

3. *Personal attributes, abilities, and characteristics*

   Following are some of the more desirable abilities and personal characteristics for candidates for medical machine technician positions:

   a. Knowledge of specific scientific techniques, procedures, machines and equipment involved in the given work situation;
   b. Accuracy in performing examinations or treatments and in reading and reporting findings;
   c. Meticulous attention to details;

d. Organizing ability in performing examinations or treatments in an orderly and systematic fashion;
e. Reasoning ability;
f. Dexterity;
g. Where required by the nature of the position, ability to work for long periods with constant accuracy in observation of details as needed and taking actions on the basis of such observations;
h. Ability to get along with professional and paramedical personnel in the hospital or clinic;
i. Sensitivity to patients and their needs;
j. Ability to gain cooperation of the patients.

Information in addition to that provided in the application form is needed for proper evaluation of qualifications for many medical machine technician positions. This includes evaluations by supervisors, teachers, and others in a position to provide information on accomplishments and personal characteristics, as well as the quality of performance on the job.

Supplemental applications may be used as necessary to obtain from the candidate the necessary information regarding college study, specialized training in the military services, or in specialized technician schools (e.g., inhalation therapy technician school), etc.

Respiratory Therapist[1]

GS–4 and above

DESCRIPTION OF WORK

Respiratory therapists administer respiratory therapy care and life support to patients with deficiences and abnormalities in respiratory function, under the direction of physicians. Using a variety of respiratory equipment, they perform therapeutic and diagnostic procedures in hospital nursing units, emergency rooms, and intensive care units. Therapeutic procedures typically include: administering oxygen, humidity and aerosol treatments; performing bronchial hygiene therapy such as clapping, vibrating, postural drainage, breathing exercises, and incentive spirometry; maintaining clearance of patients' natural and artificial airways involving the operation and monitoring of mechanical ventilators; and providing primary assistance in cardiopulmonary resuscitation. Diagnositc procedures include, for example: taking and analyzing blood gas samples to determine the level of oxygen, carbon dioxide, and acid-base balance of the blood; observing and examining patients for abnormalities in pulse, breath sounds, inspiratory and expiratory effort, and other signs which may indicate difficulty in breathing; and performing various tests and procedures such as spirometry, deadspace and tidal volume ratio, lung compliance, and maximal respiratory pressures to measure and calculate respiratory function. As a regular part of their work, respiratory therapists clean, sterilize, calibrate, and make minor repairs to the equipment. They are also responsible for recording treatment and medical information pertinent to patient care.

Respiratory therapists must have knowledge of respiratory equipment and procedures sufficient to deliver the prescribed treatment. In addition, they must have a practical knowledge of the basic medical sciences such as anatomy, physiology, chemistry, and physics as they pertain to the respiratory and circulatory systems of the human body.

For more information about the work of this occupation refer to the Position Classification Standard for the Respiratory Therapist Series, GS–651.

MINIMUM QUALIFYING EXPERIENCE REQUIREMENTS

For positions at GS–4, at least 6 months of experience at the grade GS–3 or equivalent level of work which demonstrated a knowledge of basic equipment used in respiratory therapy and included duties such as: transporting, setting up, testing the operation and changing simply oxygen administering devices (e.g., masks and nasal cannulas with cylinder or centralized medical gas systems); disassembling, cleaning, assembling, and sterilizing reusable respiratory equipment; monitoring and maintaining records of the operation of relatively simply pieces of respiratory equipment such as oxygen analyzers and regulators, including recognizing and reporting variations from expected results; and making regular rounds on hospital nursing units to insure that the respiratory equipment is operating properly and in compliance with physicians' orders.

Experience as a practical nurse, nursing assistant, medical machine aid, medical technican, or respiratory therapy aid may be qualifying providing the experience involved work which required knowledges and the performance of duties noted in the preceding paragraph.

For positions at GS–5, at least 6 months of experience at the grade GS–4 or equivalent level of work which included duties such as: administering oxygen therapy to patients using devices such as nasal cannulas, masks, catheters, and face tents; setting up and monitoring humidifiers and handheld nebulizers; performing incentive spirometry and instructing patients in deep breathing exercises; assisting physicians during bronchoscopies;

[1] This standard supersedes the qualification guidance for Inhalation Therapy Technican positions contained in the qualification standard for the Medical Machine Technician Series, GS–649, published in April 1973.

cleaning, checking the operation and changing basic respiratory equipment such as flowmeters, humidifiers, hand ventilators, oxygen tanks, and regulators; and charting and keeping records of patient treatment and progess. This experience must have demonstrated a knowledge of standard respiratory therapy equipment, procedures and techniques; working knowledge of human anatomy and physiology covering major organs and systems of the body; and a knowledge of basic chemistry, physics, and mathematics.

For positions at GS-6, at least 1 year of experience at the grade GS-5 or equivalent level of work which included duties such as: administering oxygen and aerosols containing prescribed medications to patients involving the use of a variety of standard respiratory equipment; drawing and analyzing blood samples from patients; collecting sputum specimens using aerosol administration and tracheal suctioning; performing chest physical therapy using techniques such as clapping; vibrating, and postural drainage to facilitate the removal of secretions; calibrating equipment such as oxygen regulators and blood gas analyzers; and setting up and monitoring the operation of compressors, nebulizers, non-rebreathing masks and co-oximeters. This experience must have demonstrated a knowledge of a wide variety of commonly used respiratory therapy equipment, procedures, and techniques, including an understanding of the basic operating characteristics and capabilities of volume ventilators; practical knowledge of the basic medical sciences such as anatomy, physiology, chemistry, and physics and how they relate to the respiratory and cardiovascular systems of the human body; knowledge of various respiratory diseases such as bronchitis, asthma, and emphysema, including the appropriate methods of treatment; and knowledge of commonly used respiratory drugs such as bronchodilators.

For positions at GS-7, at least 1 year of experience at the grade GS-6 or equivalent level of work which included duties such as: setting up and monitoring complex respiratory equipment such as volume and pressure ventilators; performing airway care and maintenance on intensive care patients; performing specific diagnostic studies to determine oxygen consumption/carbon dioxide production, measure respiratory compliance, tidal volume and inspiratory force; drawing and interpreting results of blood gas analyses; providing oxygen and life support to patients during emergency resuscitations; assisting physicians in placing artificial airways into patient's trachea; and calibrating complex respiratory equipment such as pressure and volume ventilators, oximeters, and mass spectrometers. This experience must have provided the applicant with knowledge of the full range of equipment, procedures, and techniques used in respiratory therapy including the operating characteristics, capabilities, and limitations of the complex equipment (e.g., volume ventilators) used in intensive respiratory care and emergency situations. The experience must have demonstrated a knowledge of anatomy and physiology of the respiratory system including an indepth understanding of how the structure and function of the lungs and bronchi relate to gas exchange and ventilation; and a knowledge of caring for a wide variety of acute and chronic respiratory disorders.

For positions at GS-8 and above, at least 1 year of respiratory therapy experience at or equivalent to the next lower grade in the normal line of promotion.

SUBSTITUTIONS OF EDUCATION AND TRAINING FOR EXPERIENCE

1. Successful completion of 2 academic years of post high school education with at least 12 semester hours in any combination of sciences such as anatomy, biology, chemistry, physics, medical technology, or physiology may be substituted for three months of the minimum experience requirements for GS-4.
2. Successful completion of a 1-year accredited program of study in respiratory therapy may be substituted for three months of the

In evaluating each candidate's experience and training, attention should be given to the following factors:

1. Knowledge of general operations, conservation, or outdoor recreation programs pertinent to the duties of the position.
2. Knowledge of subject-matter fields pertinent to the work to be performed.
3. Ability to make constructive suggestions for modification or improvement of methods, procedures, plans, techniques, equipment, or programs.
4. Ability to work independently and plan day-to-day activities.
5. Ability to meet and deal effectively with visitors.

For eligibility at grade *GS-4,* at least 6 months of the required specialized experience must have been comparable in difficulty and responsibility to grade GS-3 in the Federal Service.

For eligibility at grade *GS-5,* candidate must have had at least 1 year of specialized experience comparable in level of difficulty and responsibilty to grade GS-4 in the Federal Service.

For eligibility at *grades GS-7 through GS-11,* at least 6 months of the required experience must have been at a level of difficulty and responsibility comparable to that of the next lower grade, or one year comparable to the second lower grade, in the Federal Service.

For eligibility at *grades GS-12 and above,* at least 1 year of the required experience must have been at a level of difficulty and responsibility comparable to that of the next lower grade in the Federal Service.
(See also Federal Personnel Manual, Chapter 300, Subchapter 6.)

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this Handbook also should be used.

SELECTIVE PLACEMENT

A varying amount of selectivity is required to fill certain positions in this series. Some positions require that particular kinds or combinations of knowledges be applied more intensely than in other positions. In these cases, therefore, it is appropriate to use selective placement techniques, i.e., only those candidates who have appropriate education, training, or experience should be referred for employment consideration. The use of selective placement factors is authorized and encouraged for filling these kinds of positions. Where selective factors are used, however, they must be demonstrably related to the knowledge, skills, abilities, and other characteristics considered essential to produce candidates capable of satisfactorily performing the duties of the positions to be filled; also the factors should represent minimum acceptable qualifications for these positions.

The appropriateness of the factors should be reflected in the duties and responsibilities of the position as presented in the position description or in other official information provided by the employing agency. Additionally, the use of these factors must not result in the establishment of an unreasonably high or overly restrictive requirement. That is, the proposed selective factors should not be used if it is evident that other eligibles could perform satisfactorily after a brief orientation period. (In some cases a selective factor may not be fully justified as such but may properly be used as a quality ranking factor.)

BASIS OF RATING

At grade GS-1, candidates will be rated on their willingness to perform simple procedures, their dependability, and their ability to work safely.

At grades GS-2 and above, candidates will be rated on the basis of the quality and extent of their total experience, education, and training. Ratings will be based on statements in the application form and any addi-

tional evidence received by the Office of Personnel Management.

INSERVICE PLACEMENT ACTIONS

Waiving the Specialized Experience Requirement at GS-4 and GS-5

For inservice placement actions only, the experience requirement for positions at grades GS-4 and GS-5 may be waived for lateral reassignment of employees in related occupations provided:

1. The employee has had experience which has provided knowledge of the work of the position for which the employee is being considered.

AND

2. A review of the employee's experience and performance evidences that the employee has demonstrated the skills and abilities necessary to learn and successfully perform the work.

Park Manager and Other Supervisory Positions

Employees with administrative, professional, or managerial experience in programs or functions supporting and sustaining park operations (e.g., administrative management, facilities management, engineering, landscape architecture, or personnel management) and involving direct dealings with park managers, may be excellent candidates for park manager positions where the employee's *total* background demonstrates a good understanding of park management and operational practices and techniques.

PHYSICAL REQUIREMENTS

The following requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions:

Applicants and employees must have the capacity to perform the essential functions of the position without risk to themselves or others. In most cases, a specific medical condition or impairment will not automatically disqualify an applicant or employee. A physical condition or impairment may be disqualifying if the condition, for good medical reason, precludes assignment to or warrants restriction from the duties of the specific position. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation shall also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

In positions where there is exposure to environmental agents for which there are occupational/environmental standards which require protective measures or medical surveillance, applicants and employees shall undergo initial and periodic medical evaluation in accordance with the surveillance requirements.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

minimum experience requirements at GS-4.

3. Successful completion of a 2-year accredited program of study leading to an associate's degree in respiratory therapy may be substituted for the total minimum experience requirements for GS-4.
4. Successful completion of a 4-year or more accredited program of study leading to a bachelor's or higher degree in respiratory therapy may be substituted for the total minimum experience requirements for GS-5.

SUPERVISORY POSITIONS

For supervisory positions, apply the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X-118, in conjunction with this standard.

BASIS FOR RATING AND RANKING CANDIDATES

No written test is required. Candidates will be rated on a scale of 70 to 100 based on an evaluation of the quality and extent of their experience, education, and training or other achievements pertinent to the duties of the position to be filled. Such ratings will be based upon information furnished by candidates in their applications and any additional information that may be secured by qualification inquiries made to supervisors, schools, and other references.

Some kinds of training and experience which enhance the candidates qualifications may be treated as factors to award extra credit for rating and ranking purposes. These include but are not limited to the following:

—Possession of "certification" or "registration" such as a "Certified Respiratory Therapist" or "Registered Respiratory Therapist";

—Evidence of efforts to keep current with new equipment and procedures in the field of respiratory therapy. Such evidence might consist of successful completion of work-related educational courses in excess of those used to meet minimum requirements, or active membership in the American Association for Respiratory Therapy;

—Recognition for exceptional work performance, e.g., performance awards and work-related commendations.

INSERVICE PLACEMENT

For inservice placement actions at any grade the basis of rating is established by the agency in accordance with FPM Supplement 335-1.

ACCREDITED SCHOOLS

A listing of accredited educational programs in respiratory therapy may be secured from the Department of Allied Health Education and Accreditation, American Medical Association, 535 Dearborn Street, Chicago, Illinois 60610.

PHYSICAL REQUIREMENTS

The following requirements apply to employees occupying positions covered by this standard as well as candidates for such positions.

Candidates and employees must have the capacity to perform the essential functions of the position without risk to themselves or others. In particular, because the position requires personal contact with patients, candidates, and employees must be free of disease which is likely to be transmitted to others. In most cases, a specific medical condition or impairment will not automatically disqualify a candidate or employee. A physical condition or impairment may be disqualifying only if the condition, for good medical reason, precludes assignment to or warrants restriction from the duties of the specific position. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining a candidate's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or

restructuring, provision of readers and interpreters, or adjusted work schedules.

In positions where there is exposure to environmental agents for which there are occupational/environmental standards which require protective measures or medical surveillance, candidates and employees shall undergo initial and periodic medical evaluation in accordance with the surveillance requirements.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

PHARMACIST SERIES[1][2]

Pharmacist GS–7 and above

Supervisory Pharmacist GS–11 and above

DESCRIPTION OF WORK

Pharmacists perform or supervise professional pharmacy work such as: drug selection, compounding, and dispensing; bulk compounding of pharmaceuticals and stock preparations; providing information and consultive services to the medical staff on drugs, their characteristics, dosage indications, contra-indications, adverse reactions, availability, alternative medications, etc.; conducting research to develop new products or improve existing formulas; participating in teaching programs for residents and interns. Some pharmacists participate on evaluation teams reviewing drug proposals submitted by private industry and maintaining surveillance of marketed drugs; advise team members regarding the pharmacy aspects of the drugs under review.

Pharmacists whose duties involve administrative responsibilities perform such work as: planning and scheduling the operations of a pharmacy service; developing procedures and establishing policy for pharmacy operations; determining that appropriate policies and procedures are being followed in the various pharmacy activities; maintaining contact with related professional services, associations and schools; participating with other professional medical staff in determining drug policy for the medical care facility involved.

EDUCATION, EXPERIENCE, AND OTHER REQUIREMENTS

Minimum educational requirement

For *all* positions, applicants must have completed at least a 4-year course in pharmacy and have a bachelor's or higher degree from an approved pharmacy school. (Approved schools are those schools, colleges or universities which, at the time of the applicant's graduation, were accredited by the American Council on Pharmaceutical Education or, prior to the accrediting of schools by the Council, were members of the American Association of Colleges of Pharmacy.)

Internship and licensure

In addition to the minimum educational requirement, *all* applicants for *all* positions in GS–7 and above must have completed 1 year of internship and be licensed to practice pharmacy in a State or Territory of the United States or in the District of Columbia. (Note: One requirement for licensure is successful completion of 1 year of internship, *in addition* to the undergraduate degree.)

Additional education and experience requirements

In addition to the requirements for 1 year of internship and licensure, the amount of pharmacy education and post-licensure professional pharmacy experience required for each grade is as follows:

For GS–7 —The minimum educational requirement.

For GS–9

(a) —Successful completion of at least a full 5-year course leading to a bachelor's or higher degree in pharmacy from an approved pharmacy school; *or*

(b) —*In addition* to the requirements for GS–7, at least 1 year of post-licensure professional pharmacy experience; and/or 1 year of pertinent graduate study in pharmacy in an approved pharmacy school, which was taken subsequent to completion of internship and licensure.

For GS–11

(a) —*In addition* to the requirements specified under (*a*) or (*b*) for GS–9, at least 1 year of post-

[1] This standard supersedes the standard for this series which was issued in January 1961 and March 1961.

[2] This standard has been approved by the Administrator of Veterans' Affairs for use within the Veterans' Administration, under the provisions of Section 4105, Title 38 of the United States Code.

licensure professional pharmacy experience; *or*

(b) —Successful completion of 2 academic years of graduate work in an approved college of pharmacy, with specialization appropriate to the position, which was taken subsequent to completion of internship and licensure.

A graduate program may include a hospital residency. Successful completion of all the requirements for a master's degree in pharmacy through a graduate program (1) of at least 21 calendar months and (2) which included an approved hospital residency in pharmacy, is fully qualifying for GS–11 positions that require knowledge of hospital pharmacy.

For GS–12 and above—*In addition* to the requirements specified under (*a*) or (*b*) for GS–11, at least 1 year of post-licensure professional pharmacy experience.

Administrative experience

For positions which are administrative in nature, applicants must have demonstrated the ability to perform successfully administrative duties such as developing procedures, or planning, organizing and monitoring studies involving analysis of data and preparing reports.

→*Supervisory positions*

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

Quality and level of experience and education

For eligibility at grades GS–9 through GS–11, at least 6 months of the required professional experience must have been of a level of difficulty and responsibility comparable to that of the next lower grade in the Federal service, or 1 year comparable to the second lower grade in the Federal service. For eligibility at grades GS–12 and above, at least 1 year of the required professional experience must have been of a level of difficulty comparable to the next lower grade in the Federal service.

The number of years of experience required for any grade level represents the minimum amount of time necessary to qualify for the particular position, but length of time is not of itself qualifying. For all positions, the applicant's experience and education must have been of a level of difficulty and of a quality, scope, and nature sufficient to demonstrate clearly the ability to perform effectively the total job for which he is being considered.

For all positions, and more so at successively higher grade levels where more difficult situations are encountered, the applicant's experience must show evidence of ability to communicate clearly, deal tactfully and get along with others.

For positions in GS–11 and above, experience must have demonstrated the ability to perform independently advanced assignments requiring broad experience in or specialized knowledge of hospital pharmacy work, or other fields of pharmacy work, as may be appropriate to the position.

BASIS OF RATING

No written test is required. Competitors will be rated on a scale of 100, based on quality and extent of their education, experience and train-

ing relevant to the duties of the position. Such ratings will be based upon the applicants' statements in their applications and upon any additional information and evidence obtained by the Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 4. In addition, applicants must be able to distinguish basic colors and must possess emotional and mental stability.

GUIDE FOR EVALUATING CANDIDATES

1. The following criteria may be considered in evaluating the education and experience of candidates:

a. Pre-licensure pharmacy experience (i.e., intern experience) gained *after* completion of the bachelor's degree is usually more valuable than experience gained prior to completion of study for the bachelor's degree.

b. Completion of a pharmacy internship which meets established standards provides an opportunity for intensive training under professional supervision and more formalized evaluation of the trainee's progress. This kind of internship, therefore, is of greater value than other types of pre-licensure experience in pharmacy work.

c. Pharmacist experience acquired during internship or in post-licensure professional work is particularly valuable if gained in a work setting which relates closely to the work of the position. Thus, for positions involving hospital pharmacy work, experience gained in hospitals or outpatient clinics is normally of greater value than experience gained in community pharmacies or with pharmaceutical manufacturers. For positions involving review and surveillance of manufacturer's drug products, experience gained in professional work in production, planning, or quality control for a drug manufacturer is usually of greater value than other pharmacy experience.

d. For positions involving supervisory or administrative duties and management activities, professional experience of a supervisory or administrative nature is of greater value than professional experience of a nonsupervisory or nonadministrative nature. Evidence of ability to deal effectively with others is particularly important for these kinds of positions.

2. There are important additional considerations in evaluating the relative ability of candidates to perform the work of the particular position. Higher quality values may be assigned for such factors as:

a. Good ability to communicate and deal effectively with others.

b. Evidence of potential for professional development, as demonstrated by academic achievement or performance in professional assignments.

c. Demonstrated professional competence in previous or current work assignments which are indicative of candidate's ability to fulfill effectively the requirements of the position to be occupied.

d. Evidence of continuing professional interest and growth, as demonstrated by:

(1) Continuing participation in advanced education and training programs in pharmacy or closely related scientific fields.

(2) Active participation as a member in local, State, or national professional societies and organizations.

PHARMACY TECHNICIAN SERIES[1][2]

Pharmacy Aid GS–1/3
Pharmacy Technician GS–4/7

DESCRIPTION OF WORK

Pharmacy technicians perform, under the supervision of a registered pharmacist, a variety of technical support functions in a pharmacy. Pharmacy technicians receive, care for, store, distribute, and bulk compound pharmaceuticals, prepare sterile solutions, and set up prescriptions for a final check by a pharmacist.

EXPERIENCE, EDUCATION, AND TRAINING REQUIREMENTS

Grade GS–1

For grade GS–1, no written test, experience, training, or education is required. Candidates must be willing to perform simple routine pharmacy aid work and show evidence of likelihood of success on the job.

Experience requirements

Candidates must have had experience as described below. (Education may be substituted for experience.)

Grade	*General experience (years)*	*Specialized experience (years)*	*Total experience (years)*
GS–1	0	0	0
GS–2	½	0	½
GS–3	1	0	1
GS–4	1½	½	2
GS–5	2	1	3
GS–6	2	2	4
GS–7	2	3	5

General experience

General experience is that which has provided (*a*) a basic knowledge of laboratory procedures and equipment in chemical, biological, or medical laboratories, or (*b*) a background knowledge of the medical environment or hospital or pharmacy procedures. Such experience may have been gained in positions such as the following:

1. Nursing assistant or practical nurse.
2. Laboratory or medical technician.
3. Physical science or biological aid.
4. Medical corpsman or surgical aid.
5. Supply clerk or assistant in a drug supply firm or a pharmacy.

Specialized experience

This is experience which has provided the knowledges and skills needed to perform pharmacy technician work. The specialized experience must have provided the candidate with a basic knowledge of pharmaceutical nomenclature; characteristics, strengths, and dosage forms of pharmaceuticals; pharmaceutical systems of weights and measures, operation and care of a variety of pharmaceutical equipment; and a variety of procedures and techniques involved in the care, storage, repackaging, bulk compounding, and distribution of pharmaceuticals. The specialized experience may have been gained in hospital pharmacies, retail pharmacies, or in pharmaceutical firms or laboratories.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for Supervisory Positions in General Schedule Occupations, in part III of this handbook, should be used in conjunction with this standard.

QUALITY AND LEVEL OF EXPERIENCE

For GS–2 and GS–3, the general experience requirements are broad in intent and do not require any specialized knowledge or skill in pharmacy work.

For GS–4, the six months of specialized experience must have been comparable in difficulty and responsibility to the GS–3 level.

For GS–5, at least one year of the required experience must have been comparable in difficulty and responsibility to the GS–4 level. At least six months of this experience at the GS–4 level must have been specialized experience

[1] This standard supersedes the standard for this series that was issued in March 1969.

[2] This standard has been approved by the Administrator of Veterans Affairs for use within the Department of Medicine and Surgery of the Veterans Administration under the provision of section 4105, title 38, U.S.C.

that included duties such as the care, storage, repackaging, bulk compounding, and distribution of pharmaceuticals.

For GS–6 and GS–7, at least one year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or two years comparable to the second lower grade in the Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must demonstrate that he possesses the ability to perform the duties of the position.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

1. Graduation from a full 4-year or senior high school, or possession of a General Educational Development High School Equivalency Certificate, may be substituted in full for the experience requirements at the GS–2 level. (High school education, or the General Educational Development High School Equivalency Certificate, may not be substituted for any part of the experience requirements for GS–3 and above.)
2. Successful completion of one academic year of post-high school education that included a course in biology, chemistry, or physics may be substituted for one year of experience and meets in full the experience requirements for GS–3.
3. Successful completion of a course for (*a*) medical technicians, (*b*) hospital corpsmen, (*c*) medical service specialists, or (*d*) hospital training, obtained in a training program given by the Armed Forces or the U.S. Maritime Service under close medical and professional supervision, may be substituted on a month-for-month basis for general experience.
4. Successful completion of pertinent specialized training courses in pharmaceuticals and pharmacy practices while serving in the Armed Forces or in post-high school study may be substituted on a month-for-month basis for up to a total of one year of specialized experience.
5. Successful completion of two academic years of post-high school study in a resident school or institution of pharmacy or pharmacy technology which included course work in the care, storage, distribution, and preparation of pharmaceuticals, and appropriate laboratory work, may be substituted in full for two years of experience required at the GS–4 level (one and one-half years general and one-half year specialized).
6. Successful completion of four years of academic study in pharmacy may be substituted for three years of experience, including one year specialized experience. This meets in full the experience requirements at the GS–5 level.

Appropriate education and training other than that outlined above, such as in "new careers" training programs, manpower development programs, and inservice training programs will be granted credit depending upon its applicability and extent.

Post-high school education or training which is acceptable under these standards may be substituted for part of the required experience on a pro rata basis.

WRITTEN TEST

Candidates for positions at GS–2 and GS–3 must pass the written test of abilities necessary to learn and perform the duties of these positions. The written test may be waived for candidates who have successfully completed the equivalent of a specialized training program in pharmacy of at least six months.

BASIS OF RATING

Competitors for all positions will be rated on the quality and extent of experience, educa-

tion, or training in relationship to the duties of the positions. Ranking will be made on the following basis:

For GS–1:	An evaluation of the applicant's willingness to do simple and repetitive pharmacy aid work; his dependability; and his ability to work safely.
For GS–2 and GS–3:	Written test scores, or an evaluation of experience, education, and training of candidates who attained a passing score on the written test.
For GS–4 and above:	An evaluation of experience, education, and training in relationship to the duties of the position.

The information for evaluating experience, education, and training will be taken from the application form and any additional information which may be obtained through reference inquiries to supervisors, teachers, and others.

SELECTIVE PLACEMENT

Some positions may require particular knowledges and skills. For these positions, consideration may be limited to those candidates whose records show that they have the required knowledges and skills.

INSERVICE PLACEMENT ACTIONS

Written test

For inservice placement actions, the test is *not* required and, therefore, may *not* be used on a pass-fail basis. In addition, the test may *not* be used in evaluating or ranking eligible employees unless the test is approved for this purpose by the Civil Service Commission. (See section A–3, appendix A, *FPM Supplement 335–1.*)

Credit for high school education

For inservice placement actions, high school education may be credited in accordance with the "add-on" rule; that is, the employee need show only that he has acquired the additional qualifications required for the new position. Thus, a high school graduate appointed at GS–2 needs six months of experience to qualify for a grade GS–3 position,

Substitution for specialized experience requirement at GS–4

For inservice lateral reassignment actions only, experience in related occupations may be substituted for 6 months of specialized experience at GS–4, provided:

1. The candidate has had experience which has provided a general familiarity with the work of the position for which he is being considered; and
2. The candidate's experience and performance clearly indicate the possession of necessary skills and abilities, and evidence potential for successful performance of the work.

GUIDE FOR EVALUATION OF CANDIDATES IN RELATION TO JOB REQUIREMENTS

Methods of evaluation

Useful procedures for evaluating candidates for technician positions are described in *FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement.* Several procedures, including job element rating, are suggested in this material, one or more of which may be appropriate for the positions in this series.

Evaluation of personal attributes

For technician positions, the evaluation of qualifications logically includes appraisal of personal attributes and characteristics as

demonstrated in performance on the job. This includes the degree and scope of the candidate's technical knowledge, skills, and abilities which can be brought to bear upon duties in the position to be filled. Following are some of the more desirable abilities and personal characteristics for candidates for pharmacy technician positions:

(a) Knowledge of specific technical pharmacy techniques and procedures involved in the given work situation;
(b) Knowledge of basic arithmetic computation;
(c) Dexterity;
(d) Ability to read and understand pharmaceutical nomenclature;
(e) Ability to follow oral instructions;
(f) Ability to organize work when performing bulk compounding, repackaging, and other routine functions;
(g) Ability to get along with hospital and clinic personnel.

In determining the extent to which candidates possess such knowledges, skills, and abilities, a job element approach may be helpful. The *Job Qualification System for Trades and Labor Occupations* (*Handbook X–118C* of May 1969), discusses the job element procedures and techniques to be used in obtaining information from candidates and measuring their qualifications. That material may be adopted for use in this occupation. Since many positions in this series are filled through inservice placement, the procedures and questions to be asked of candidates should be tailored to the requirements of the specific position and the labor market. The material on pages 21 through 29, Rating for Inservice Placement, of the *Internal Qualification Guides for Trades and Labor Jobs*, will be especially helpful.

PHYSICAL REQUIREMENTS

See Part II, Physical Requirements, paragraph 5. In addition, all candidates must possess emotional and mental stability.

OPTOMETRIST SERIES

Optometrist GS–9 and above

DESCRIPTION OF WORK

Optometrists (Clinical) perform duties involving measurement of visual acuity and abnormalities of vision, and development of prescriptions for lenses or visual training, or both, to correct visual defects (near sightedness, astigmatism, etc.) that are not caused by active diseased or pathological conditions.

Optometrists (Industrial) perform duties in conjunction with an industrial health or safety program and, in addition, perform technical and/or administrative work in the operation of an occupational vision program for the prevention of eye injuries or accidents.

Optometrists (Research) perform duties in research for which a full professional knowledge of optometry is a paramount requirement.

EDUCATION, EXPERIENCE, AND RELATED REQUIREMENTS

License to practice

For all grades, candidates must be currently licensed to practice optometry in a State or Territory of the United States or in the District of Columbia. This requirement applies to all optometrist positions except research positions which do not entail patient care responsibilities. Currently, all States require graduation from an accredited school or college of optometry in order to take the examination for licensure to practice optometry.

Education and experience

1. *For grade GS–9*, candidates must have the following qualifications:
   a. The successful completion of a full 5 or 6 year course of study in an accredited school or college of optometry, which led to a Doctor of Optometry (O.D.) or equivalent degree, *or*
   b. Six years of professional experience as a licensed optometrist, *or*
   c. Any combination of a. and b., above, totaling 6 years.
2. *For grades GS–11 and above*, in addition to meeting the requirements for grade GS–9, candidates for GS–11 must have had a minimum of 1 additional year of professional experience as an optometrist; for GS–12, 2 additional years, and for GS–13 and above 3 additional years are required. The experience must have demonstrated the ability to perform advanced clinical assignments independently.

For industrial optometrist positions at grades GS–12 and above, the candidate's experience must have demonstrated the knowledges and abilities to administer an industrial optometry program in a large industrial activity in which the program is characterized by a continuing need for development of new methods, procedures, and devices for protection of employes engaged in eye-hazardous work.

QUALITY OF EXPERIENCE

Eligibility in any grade will be based upon a clear-showing that the candidate has had experience of a scope and quality sufficient to provide the ability to handle technical or managerial assignments commensurate with the duties involved. For any grade, length of experience beyond the required minimum is less important than demonstrated success in performing duties of a responsible nature. For grade GS–11, at least 1 year of the experience must have been at a level of difficulty and responsibility comparable to the GS–9 grade in the Federal service. For grades GS–12 and above, 1 year of experience must have been at a level of difficulty and responsibility comparable to that of the next lower grade in the Federal service.

SUPERVISORY POSITIONS

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

BASIS OF RATING

No written test is required. Competitors will be rated on a scale of 100 based on quality and extent of education, training, and experience.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 5; in addition, candidates must possess emotional and mental stability.

GUIDE FOR EVALUATION OF EDUCATION AND EXPERIENCE

The following criteria should be considered in the evaluation process:

1. a. For industrial optometrist positions, experience which has shown qualities of leadership and ability to plan, promote, and administer programs is of higher quality than industrial experience which has merely provided a knowledge of occupations and their visual requirements.
   b. For industrial optometrist positions industrial experience is normally of higher quality than clinical experience. However, a clinical optometrist, whose place of practice was so located that many patients came from an industrial situation, may have acquired much knowledge of the problems encountered in an industrial employment situation. To receive additional credit for such experience, the optometrist should be required to describe fully the scope of experience in providing for visual requirements in the industrial environment.
2. For research positions, graduate education in related disciplines is especially valuable.
3. Candidates qualifying on the basis of education or training alone, who graduated from a 6-year curriculum may be assigned a higher quality level than those who graduated from a 5-year curriculum. (In either case the quality assigned may be supplemented on the basis of the candidate's scholastic record; recommendations from the school's Dean of Optometry; or information furnished by a State Board of Optometric Examiners; or the local Optometric Association.)
4. Military experience as a professional optometrist may be assigned the same quality value as similar experience gained in the Federal service in a civilian capacity.
5. Experience in a teaching capacity in the field of optometry in an accredited school of optometry is normally of higher quality than experience gained in private practice.
6. Extra credit may be assigned for additional qualifications such as:
   a. Published papers and articles having a direct bearing on optometric procedures and techniques.
   b. Excess high quality professional experience or training which has not already been credited.
   c. Membership in an optometry organization requiring specialized qualifications or meritorious achievements (e.g., American Academy of Optometry).
   d. A master's or higher degree in any of the related scientific fields (e.g., physics, biology, physiological optics, psychology, etc.).

PERSONAL CHARACTERISTICS

In rating candidates, an important consideration should be whether they have demonstrated the ability to get along well with others, and to establish an effective working relationship with others. Since this work involves a close relationship with patients, the ability to deal with people in a tactful and sympathetic manner and to exercise good judgment is essential. The candidates should also demonstrate an ability to communicate with patients.

It is suggested that any evidence secured that a candidate is lacking in such qualities or abilities should tend to reduce his rating severely, if not to remove him from consideration. If such evidence is first secured in a preemployment interview, it may serve as the basis for submitting objections to an eligible.

APPROVED SCHOOLS

The following schools or colleges of optometry are currently accredited by the American Optometric Association Council on Optometric Education, the official accrediting agency recognized by the National Commission on Accrediting:

Ferris State College of Optometry
Illinois College of Optometry
Indiana University, Division of Optometry
Massachusetts College of Optometry
Ohio State University, School of Optometry
Pacific University, College of Optometry
Pennsylvania College of Optometry
Southern California College of Optometry
Southern College of Optometry
State University of New York, College of Optometry
University of Alabama, School of Optometry
University of California, School of Optometry
University of Houston, College of Optometry

Until recently graduation from some of the above schools required a minimum of 5 academic years of specified college level courses, made up of 2 years of preoptometry courses and 3 years of professional studies at an optometry school.

Optometry schools and colleges in the United States are now operating under a standard 6 year program (2 years preoptometry and 4 years of professional courses). The degree of Doctor of Optometry has been adopted as signifying completion of the 6-year program and qualification for licensure.

Additional information concerning accredited schools may be obtained by writing to:

American Optometric Association Council on Optometric Education
American Optometric Association
700 Chippewa Street
St. Louis, Missouri 63119

Restoration Technician GS–5/11

Options
Ear Inserts
Artificial Eye
Facial and Body
General

These qualification requirements have been approved by the Administrator of Veterans Affairs for positions in the Department of Medicine and Surgery, Veterans Administration, under authority of Section 4105, Title 38, U.S.C. They are also established by the Civil Service Commission for use in all agencies.

Description of work

Restoration technicians advise on, supervise, or perform technical work involving the development, design, fabrication, fitting to patients, and repair of custom-made medically prescribed appliances which are used primarily for cosmetic and restorative purposes in order to compensate for loss or damage to various areas of the human body by restoring a normal appearance. Restoration technicians may also perform experimental work in the development, improvement, and evaluation of restorative appliances and techniques.

Education and experience requirements

Except for the substitution of education or training provided elsewhere in these standards, the minimum amount of experience required is as follows:

Grade	Total experience (years)	General experience (years)	Specialized experience (years)
GS–5	3	3	0
GS–6	3½	3	½
GS–7	4	3	1
GS–8	4½	3	1½
GS–9	5	3	2
GS–10	5½	3	2½
GS–11	6	3	3

General experience

General experience acceptable for qualification in any grade is experience in the following areas: (1) as a teacher of art or sculpture at high school level or above; (2) as a sculptor whose experience has demonstrated the knowledge and ability required to sculpture the various portions of the human anatomy, has involved preparation of negative and positive molds, and casts, and has provided a knowledge of fabrication in plastics; (3) as a portrait artist whose experience has demonstrated ability to reproduce human likenesses in various color media, such as oil paints, water colors, sepia, etc., and a knowledge of color composition and blending; (4) as a medical illustrator whose experience has included making illustrations in monochrome and full color, and preparing moulages, and has provided a knowledge of fabrication in plastics; (5) as a commercial artist, color designer, illustrator or graphic artist, scenic artist or one doing similar work of an artistic or illustrative nature where good knowledge of color composition, blending and design is required; (6) as a dental laboratory technician whose experience has involved the design and fabrication of dental appliances, and provided a knowledge of, and ability to use, modern materials and techniques.

Specialized experience

Specialized experience must be progressive, responsible, technical experience in restoration work. It must include experience (1) in the design, fabrication, and fitting of plastic artificial eyes, ear inserts or facial and body restorations, or (2) in the performance of experimental and developmental work on cosmetic restorative devices, processes or techniques. For positions in specialized options, at least 1 year of the experience must have provided substantial experience in the work and techniques of the option for which application is made, and the applicant's overall experience must show clearly that he can perform the duties of the position. At least 6 months of the specialized experience must have been at a level of difficulty and responsibility of the next lower grade or 1 year equivalent to the second lower grade. Excess specialized experience may be substituted for general experience.

→*Supervisory positions*

For supervisory positions use the qualification standard for "Supervisory Positions in

General Schedule Occupations" in part III of this handbook in conjunction with this standard. ←

Substitution of education and training for experience

For all grades, successfully completed study in a recognized resident institution above high school level may be substituted for general experience at the rate of 1 year of education for 9 months of experience, provided the study included an average of at least 9 semester hours per school year in one or a combination of the following subjects: art, sculpture, medical illustration, commercial art, anatomy and mechanical dentistry.

Basis of rating

No written examination is required. Applicant's qualifications will be rated on a scale of 100 on the basis of an evaluation of the amount and quality of experience, and the extent to which it has demonstrated competence to perform the work of this series.

Physical requirements

Applicants must be physically able to perform efficiently the duties of the position, which are described elsewhere in these standards. Good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. The duties of most positions require the ability to distinguish either basic or shades of colors; however, there may be a few positions which do not require this ability, and for these positions applicants with defective color vision may receive consideration. Ability to hear the conversational voice, with or without a hearing aid, is required for most positions; however, some positions may be suitable for the deaf. In most instances, an amputation of leg or foot will not disqualify an applicant for appointment, although it may be necessary that this condition be compensated by use of satisfactory prosthesis.

P.R. Codes: A–4; B–4, 5, 6, 7, 8; C–1, 2, 3; D–2; E.

SPEECH PATHOLOGY AND AUDIOLOGY SERIES[1][2]

Speech Pathologist GS-9/15
Audiologist GS-9/15
Speech Pathologist and Audiologist GS-9/15

DESCRIPTION OF WORK

Speech pathologists and audiologists work with children and adults to resolve their communicative disorders which are reflected in impaired hearing, voice, language, or speech. The speech pathologists and audiologists help these patients to make effective adjustments to these disorders. There may be some positions which are concerned with clinical and laboratory research and experimentation in speech and hearing problems. Speech pathologists and audiologists work with physicians and psychologists in clinics which may or may not be attached to hospitals.

BASIC REQUIREMENTS FOR ALL GRADES

Applicants for positions of speech pathologist must have successfully completed all the requirements for a master's degree which included 18 semester hours in the field of speech pathology with approved clinical practice.

Applicants for positions of audiologist must have successfully completed all the requirements for a master's degree which included 18 semester hours in the field of audiology with approved clinical practice.

Applicants for positions which combine the duties of speech pathologist and audiologist must have successfully completed all the requirements for a master's degree with 18 semester hours in one of the fields with approved clinical practice and, in addition, must have either completed a minor in the other field or must have had at least 1 year of professional experience in the other field.

[1] The standard for this series has been approved by the Administrator of Veterans' Affairs for use within the Department of Medicine and Surgery of the Veterans' Administration under the provisions of section 4105, title 38, U.S.C.

[2] The standard for this series supersedes the standard which was issued in December 1968.

GS-9.—The basic requirements which apply to all grades are fully qualifying for grade GS-9.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-11 and above must have had either professional experience or graduate education (or an equivalent combination of both) as described below in addition to meeting the basic requirements. Such professional experience or graduate education must have been in the appropriate specialty field, i.e., audiology, speech pathology, or combined speech pathology/audiology. This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are qualifying for grades GS-11 and above:

Grade	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS-11	1
GS-12	2
GS-13 and above	3

2. *Education*

The following amounts and levels of education, in addition to the basic requirements, are qualifying for grades GS-11 and above:

Grade	*Minimum amount or level of education in appropriate subject-matter fields*
GS-11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* One full academic year of post master's graduate education, provided, that this, in combination with the master's degree, totals 3 years of graduate study.

Grade	Minimum amount or level of education in appropriate subject-matter fields
GS–11 Research positions.	None, provided the master's or equivalent degree required at least 2 full academic years of graduate study when— a. the position involves primarily research or very similar research type exploratory development of a creative or advanced scientific nature; b. the knowledges required for the work are typically and preferably acquired through graduate study; c. the work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. the position involves primarily research or very similar research type exploratory development of a creative or advanced scientific nature; b. the knowledges required for the work are typically and preferably acquired through graduate study at the doctoral level; c. the work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

Equivalent combinations of professional experience and graduate education of the type described above are acceptable at each grade. (Thirty semester hours, or the equivalent of part-time graduate education, may be considered to be equal to 1 full academic year of graduate education.)

QUALIFYING EXPERIENCE

The following types of professional experience in a hospital, special treatment center for the handicapped, university or community clinic, or industrial or educational institution are qualifying for positions of speech pathologist or audiologist:

a. investigating and studying the underlying causes, precipitating factors, symptomatic behavior, and the emotional and practical effect upon the patient, of a particular impaired speech pattern; resolving speech impairments; counseling patients and/or families in the adjustment to the speech impairment (for positions of speech pathologist);
b. assessing, evaluating, analyzing, and treating communicative handicaps resulting from hearing impairments (for positions of audiologist);
c. investigating methods to improve the clinical management of communicative disorders and to increase the basic scientific understanding of communicative processes and other factors causing their disruption;
d. providing instruction in the principles and bases of communication including clinical techniques and methods of assessment, evaluation and treatment, to audiologists, speech pathologists, and specialists in related fields (such as medical residents in otolaryngology);
e. teaching audiology or speech pathology at the graduate level.

In addition to meeting the experience requirements described above, applicants for the speech pathologist/audiologist combined positions must have had sufficient professional experience in both speech pathology and audiology as to demonstrate their competence to perform the duties concerned. In recognition of the fact that there is considerable overlap of education and experience between the fields of speech pathology and audiology, the following substitutions

of experience in the other field are acceptable at the grade levels shown:

a. *GS–11*	up to 6 months of the required professional experience may be in the other field;
b. *GS–12*	up to 1 year of the required professional experience may be in the other field;
c. *GS–13 thru GS–15.*	experience in the other field may be substituted to the extent possible which still assures technical competence in the field concerned.

QUALITY OF EXPERIENCE

The number of years of experience required for any grade level represents the minimum amount of time necessary to qualify for the appropriate position, but length of time is not in itself qualifying. The applicant's experience must also have been of a quality and scope sufficient to enable him to perform satisfactorily assignments typical of the grade level for which he is being considered. The evaluation of the applicant's performance and potentialities will be based upon inquiry of his supervisors and others familiar with the nature and quality of his work.

For grade GS–11, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

BASIS OF RATING

Applicants will be rated on the quality and extent of their experience, education and training in relationship to the duties of the positions. Ratings will be based on an evaluation of the personal and professional qualifications of the applicant as shown in the application form, academic record, and from inquiries to their superiors, associates and other professional references. These references will be made to obtain information concerning the applicant's knowledge, skill, and ability in evaluation of communicative problems, in redeveloping communicative efficiency, and, if applicable to the position involved, in research, training, consultation or in administration. Inquiries will also concern personal attributes, including effectiveness in interpersonal relationships, emotional stability, professional ethics, and motivation.

Candidates having completed the requirements for a doctoral degree (Ph. D. or equivalent) in the appropriate field may be given greater credit than those who are eligible on the basis of professional experience, when the knowledges required for the position for which considered are preferably acquired through graduate study at the doctoral level.

The following factors may be applied to the applicant's experience to measure the difficulty and scope of the duties and responsibilities in relation to the position for which considered:

(a) the demonstrated breadth and level of knowledge of the principles and theories of speech pathology and/or audiology;
(b) the skill in analyzing and interpreting test results in the evaluation of communicative disorders;
(c) the ability to independently plan and conduct a program of therapy;
(d) the ability to communicate effectively, orally and in writing; and
(e) the ability to establish and maintain effective relationships with individuals and groups in evaluating and resolving problems in hearing, voice, language or speech.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3, except that applicants must be able to hear the whispered voice. In addition, applicants must possess emotional and mental stability.

ORTHOTIST AND PROSTHETIST SERIES[1][2]

Orthotic-Prosthetic Aid
Orthotist
Prosthetist
Orthotist-Prosthetist
Grades GS–5/15

DESCRIPTION OF WORK

Orthotists and prosthetists work as members of the medical team engaged in the rehabilitation of patients with disabling conditions of the limbs and spine, or with partial or total absence of a limb or limbs. On prescription they design and fit orthoses (braces and orthopedic shoes), or prostheses to replace missing limbs or parts of limbs. Practitioners in this field merge the knowledges and skills of modern technology with applied knowledge of human anatomy, physiology, body mechanics, and clinical practices to develop devices permitting patients a range of movement and function. Orthotists and prosthetists also instruct patients in the use and care of the prescribed equipment.

EXPERIENCE REQUIREMENTS

Candidates must have had experience as described below. (Education may be substituted for experience.)

Grade	*Length of Experience (years)*
GS–3	1
GS–4	2
GS–5	3
GS–7	4
GS–9	5
GS–11 and above	6

For grade GS–3, candidates must have experience in the amount specified that provided familiarity with orthotic or prosthetic work or skill and knowledge in one of the following:

(1) Work which provided knowledge of or skill in the use of hand or power tools; or of wood, plastics, metal, leather, or other materials used in orthotic or prosthetic devices.

(2) Work in hospital or clinical routines and procedures related directly to the care of patients which provided a practical knowledge of the medical environment.

The experience and training may have been acquired, for example, in automotive, electronic, furniture, garment, or woodworking shops or factories; nursing assistant, therapy assistant, or medical aid in a hospital; or in the Armed Forces as a medic or mechanic.

For grade GS–4, candidates must have experience in the amount specified that provided familiarity with orthotic or prosthetic work or skill and knowledge in the use of hand and power tools in working with materials used in orthotic or prosthetic devices.

For grades GS–5 and above, candidates must have experience and training in the amount specified that provided a solid background of knowledge, skill, and ability related to:

(1) The theories and principles of orthotics or prosthetics;

(2) The use of hand and power tools for the development or fabrication of orthotic or prosthetic devices and appliances;

(3) The technology of materials commonly used in orthotic or prosthetic appliances; and

(4) The measurement or patients, the fabrication and fitting of orthoses or prostheses from prescriptions according to recognized and accepted techniques.

In addition to these experience and training requirements, candidates must have the ability:

(1) To deal with patients' orthotic or prosthetic needs, while recognizing their emotional and mental outlook and attitudes;

(2) To accept responsibility as participating members of the health care team, aware of the ethical considerations present and the need to adhere to medical ethical practices in all their relationships; and

(3) To work with others, professionals and nonprofessionals, and to recognize the

[1] This standard supersedes the standard for this series that was issued in May 1964.

[2] This standard has been approved by the Administrator of Veterans Affairs for use within the Department of Medicine and Surgery of the Veterans Administration under the provision of Section 4105, title 38, U.S.C.

contribution of each in attaining the objectives of the treatment plan prescribed by a physician or developed by a clinical team.

The candidates' experience, training, and education must be such as to provide the knowledge and ability to perform fully the duties of the position for which they are being considered.

In filling positions competitively or by in-service placement, appointing officers should assure themselves that candidates possess the abilities specified to the degree required by the duties of the position.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successful completion of one academic year of post-high school study in a resident school or institution or in an accredited college, junior college, or university may be substituted for the experience requirements for GS–3. This study must have included a course appropriate to the work such as orthotics, prosethetics, anatomy, psychology, nursing, biology, medical terminology, handicrafts, physical education, or inductrial arts education.

Successful completion of two academic years of study that included courses as described for GS–3 may be substituted for the two years of experience required for grade GS–4.

Successful completion of apprenticeship training in such trades and crafts as plastics and sheet metal work, machinist, patternmaker, or similar trades and crafts which provide knowledge of the practices, procedures, techniques, and the use of the equipment and tools may be substituted on a year for year basis for a maximum of two years of the required experience.

A successfully completed Orthotist-Prosthetist apprenticeship in a facility approved by the American Board for Certification in Orthotics and Prosthetics, Inc., will meet in full the experience and training requirements for grade GS–6 positions.

A full 4-year course of study at an accredited college or university leading to a bachelor's degree with major study in prosthetics and orthotics meets fully the qualifying requirements for grade GS–5.

A full 4-year course of study at an accredited college or university leading to a bachelor's degree with major study in prosthetics and orthotics, and subsequent successful completion of the clinical affiliation training prescribed by the school to assure professional competence to practice the occupation, meets the requirements for grade GS–6

QUALITY AND LEVEL OF EXPERIENCE

For *grade GS–4*, six months of the required experience must have been comparable in difficulty to the GS–3 grade level.

For *grade GS–5*, at least one year of the required experience must have been comparable in difficulty and responsibility to the GS–4 grade level.

For *grades GS–6 through GS–11*, at least six months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or one year comparable to the second lower grade, in the Federal service. For grades GS–12 and above at least one year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for Supervisory Positions in General Schedule Occupations, in part III of this handbook, should be used in conjunction with this standard.

WRITTEN TESTS

Candidates for positions at grade GS–3 must pass a written test of abilities necessary to learn to perform the duties of these positions. The written test should be waived for candidates who qualify at the GS–3 or higher level based on the successful completion of education or training in orthotics or prosthetics.

A written test is not required for GS–4 and above.

SELECTIVE PLACEMENT

Selective placement may be used to fill positions which require specialized knowledges or skills, e.g., in teaching, or in application of specialized techniques as appropriate.

BASIS OF RATING

Candidates for all positions will be rated on a scale of 100. For eligibility they must attain a rating of 70. The basis of rating will be as follows: For GS–3 level positions the rating will be based on the written test score, or on evaluation of the experience and training of candidates.

Candidates for positions at GS–4 and above will be rated on the quality and extent of their experience, training, or education as it pertains to the knowledges, skills, and abilities required to perform the level of duties of the position.

INSERVICE PLACEMENT ACTIONS

Written test

For inservice placement actions, the test is *not* required and, therefore, may *not* be used on a pass-fail basis. In addition, the test may *not* be in evaluating or ranking eligible employees unless the test is approved for this purpose by the Civil Service Commission. (See section A–3, appendix A, *FPM Supplement 335–1.*)

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for orthotic-prosthetic aid positions should have:

1. Finger and manual dexterity;
2. Ability to read and understand written instructions or directions;
3. Ability to note similarities and differences in patterns or materials;
4. Ability to follow oral directions;
5. Ability to perform basic arithmetic computations;
6. Ability to learn the duties of a trainee and to absorb the instruction given preparatory to the assignment of more difficult duties.

Candidates for higher level orthotist and prosthetist positions must bring to their work basic skills related to the tools, equipment, and procedures used in fabricating and repairing orthotic or prosthetic devices, plus a progressively increasing measure of knowledges, skills, and abilities, such as the following:

1. Knowledge of the methods used in fabricating and repairing orthotic and prosthetic devices;
2. Knowledge of and skill in measuring and fitting patients;
3. Basic knowledge of human anatomy, physiology, and body mechanics;
4. Ability to plan work;
5. Ability to analyze a situation and make a decision;
6. Ability to communicate effectively, orally and in writing;
7. Ability to work with patients, and members of the medical team.

Evaluation of education and experience

Evaluation of education and experience for both competitive and inservice placement actions logically includes the degree and scope of the candidates' knowledge, skills, and abilities which can be brought to bear upon duties of the position to be filled or in the area of specialization of the position. Such knowledge and abilities may have been obtained on the job or in courses related to the work of the position.

Typically, candidates who meet the requirements of the American Board for Certification in Orthotics and Prosthetics and have been awarded the title of Certified Orthotist or Certified Prosthetist by that Board will have successfully completed an examination in the discipline for which they are certified. Candidates for certification must have four years of clinical experience in the discipline with the last two years devoted to patient care, or a Bachelor of Science degree in orthotics or prosthetics from a school accredited by the Board, plus a year of clinical training. This certification is consid-

ered in evaluating the qualifications of candidates.

In ranking candidates, detailed facts about the position requirements need to be established. For a position which requires specialized knowledge and abilities, experience gained in the particular kind of work and in the same or a directly related field as the position to be filled should normally be ranked as highest quality. Experience in work which is similar to the duties of the position but in a less closely related field, or experience in work which is different from that of the position but in the same or closely related field, should be ranked at lower levels, or as nonqualifying, depending upon the extent of relatedness and needs of the position.

Methods of evaluation

Useful procedures for evaluating candidates for positions are described in *FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement.* Several procedures, including job element rating, are suggested in this material, one or more of which may be appropriate for the varied types of positions classified in this series.

PHYSICAL REQUIREMENTS

See Part II, Physical Requirements, paragraph 5. In addition, candidates must possess emotional and mental stability.

Podiatrist GS–11 and above [1]

DESCRIPTION OF WORK

Podiatrists diagnose and take actions to correct or prevent diseases and disorders of the feet and ankles. They use physical, medical, and/or surgical methods; write prescriptions for medications, corrective exercises, corrective footwear, orthoses, and prostheses; and/or do investigative research for analytical evaluation and experimental purposes when such work requires the application of professional podiatric medicine knowledges and skills.

EDUCATION, EXPERIENCE, AND RELATED REQUIREMENTS

License

Applicants for all grades must be currently licensed to practice podiatric medicine in one of the States or the District of Columbia.

Education

Applicants must possess a degree of doctor of podiatric medicine or equivalent from a school of podiatric medicine approved by the American Podiatry Association in the year in which the degree was granted.

Experience

Applicants must, in addition to meeting the above education requirements, have experience as specified below for each grade. Experience to be creditable must have been in the practice of podiatry in an office, clinic, or hospital. Approved graduate training (residencies and preceptorships) is credited on the same basis as other experience.

GS–11: NONE
GS–12: 1 YEAR
GS–13: 2 YEARS

Supervisory positions

For supervisory positions, use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of this handbook in conjunction with this standard.

[1] This standard supersedes Handbook X–118 qualification standard for the Podiatrist Series, GS–668, dated December 1975.

QUALITY OF EXPERIENCE

Experience in the practice of podiatric medicine must have been continuous and progressive and show ability to perform the duties of the positions being filled. For grade GS–12 and above, applicants must show 1 year of experience at a level of difficulty comparable to the next lower grade in the Federal service.

PERSONAL CHARACTERISTICS

Applicants should have the ability to get along well with others, to deal with patients in a tactful, sympathetic, and effective manner, and to exercise good judgment.

BASIS OF RATING

Applicants will be rated on a scale of 100, on the extent and quality of their experience and training relevant to the duties of the positions. Such ratings will be based upon applicants' statements in their applications and upon any additional information secured.

PHYSICAL REQUIREMENTS

The following requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Candidates must have the capacity to perform the essential functions of the position without risk to themselves or others. In most cases, a specific medical condition or impairment will not automatically disqualify a candidate. A physical condition or impairment may be disqualifying if the condition, for good medical reason, precludes assignment to or warrants restriction from the duties of the specific position. The loss of use of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation shall also be considered in determining a candidate's ability to perform the duties of the position. Reasonable accommodation may include, but is not

limited to, the use of assistive devices, job modifications or restructuring, provision of readers and interpreters, or adjusted work schedules.

In positions where there is exposure to environmental agents for which there are occupational environmental standards which require protective measures or medical surveillance, candidates shall undergo initial and periodic evaluation in accordance with the surveillance requirements.

Also, all positions involving operation of a Federal motor vehicle carry the additional medical requirements specified in the *Federal Personnel Manual* (FPM), chapter 930, appendix A, "Physical Standards for Motor Vehicle Operators and Incidental Operators."

MEDICAL RECORD LIBRARIAN SERIES

Medical Record Librarian

GS–5/14

DESCRIPTION OF WORK

Medical record librarians are employed in hospitals, clinics, or other medical care or research facilities. Their duties are to advise on, administer, supervise or perform work in connection with the development, maintenance, analysis and use of diagnostic and therapeutic medical records. The duties will include one or more of the following: (1) advising management or staff members, or providing consultation services, on medical record problems or procedures; (2) advising research investigators or staff members on methods of recording or retrieving record data; (3) teaching or training of personnel or staff members in medical record techniques or closely related subjects; (4) evaluating and modifying a medical record program to meet particular needs; (5) organizing or managing a medical record program; or (6) advising on or being responsible for medical record matters involving medicolegal problems. Successful performance of the work requires a thorough knowledge of medical record techniques and procedures, and involves close cooperation with medical, paramedical, and administrative staff personnel.

(A more detailed description of the work will be found in the position classification standard for the Medical Record Librarian Series, GS–669. This standard may be used as a source of information if more details on duties are desired.)

EXPERIENCE AND EDUCATION

1. *Basic experience or education required*

Qualifying experience for positions in this series is expressed in terms of a basic experience requirement which is qualifying for GS–5, and experience as a medical record librarian which is qualifying for higher grades. The length of experience required at GS–6 and above, as shown in the following table, is in addition to the experience or education required at the GS–5 level:

Table by grade of minimum experience required

Grade level	*Experience required (years)*
GS–5	(Meet qualifications for GS–5)
GS–6	½
GS–7	1
GS–8	1½
GS–9	2
GS–10	2½
GS–11 and above	3

To qualify for GS–5 level positions, applicants must have a background of one of the following:

a. Successful completion of the program of study in an approved school for medical record librarians;

b. At least 3 years of full-time, progressive experience in work related to the preparation and maintenance of medical records which has provided a thorough knowledge of medical terminology and medical record procedures and has been of such quality that it has provided the equivalent of what would have been gained through completion of an approved school program for medical record librarians. At least 2 years of this experience must have been gained in a medical record department which uses modern, generally accepted record techniques and procedures.

2. *Substitution of education and training*

Education may be substituted for experience as required in 1(b) above to the following extent. Those applicants who have successfully completed training in an approved school for medical record *technicians* will be credited with having 1 of the required 3 years of experience. No substitution may be made for only partial completion of such a school training course.

Persons who possess or have successfully completed all requirements for a bachelor's degree, and who subsequently successfully complete the Veterans Administration 1-year Registrar-Medical Record Library training and

internship program, may be rated eligible for GS–6 positions Similarly, persons who possess or have successfully completed all requirements for a bachelor's degree, and who subsequently successfully complete either the Public Health Service 1-year medical record administration training and internship program, or any other 1-year program for medical record librarian training in an approved school, may be rated eligible for GS–6 positions.

★3. *Superior academic achievement*

The superior academic achievement standard in section III of part II, Instructions to Users, of this handbook is applicable at grade GS–7.★

However, for *GS–7* positions, an agency may request selective certification of applicants with experience when, because of the work situation and such circumstances as lack of suitable technical supervision, a quality graduate without work experience could not reasonably be expected to perform the duties of the position.

4. *Qualifying experience*

To satisfy the experience requirements above the GS–5 level, the additional experience required must have been gained as a medical record librarian.

All applicants must show that their experience has been of sufficiently high quality to enable them to perform the duties of the position for which application is being made. For positions at grade GS–6, at least 6 months of the experience must have been at a level equivalent to grade GS–5. For positions at grades GS–7 through GS–11 at least 6 months of the experience must have been at a level equivalent to the next lower grade, or 1 year equivalent to the second lower grade in Federal service. For positions at grade GS–12 or above, applicants must have had at least 1 year of experience equivalent to the next lower grade.

5. *Nonqualifying experience*

Experience which has not provided a broad and thorough knowledge of medical record techniques and procedures such as experience in a medical record library as a file clerk or typist, or experience in an ordinary library as librarian or library assistant, will not be considered as fulfilling any part of the preceding requirements.

PERSONAL CHARACTERISTICS

Applicants should possess the ability to work effectively with all types of people; the ability to speak and write clearly and persuasively; the ability to exercise good judgment; and the ability to organize and analyze work procedures. They should be tactful and emotionally stable. Many positions require administrative ability or a demonstration of its potential.

BASIS OF RATING

Applicants will be rated on the extent and quality of their experience. Information upon which to make a rating will be obtained from the standard application form, and whatever other information may be supplied to or requested by the Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 4; in addition, applicants must possess emotional and mental stability.

DRIVER'S LICENSE REQUIREMENT

A few positions may require ability to operate an automobile. Applicants for these positions must possess, or obtain within 30 days after appointment, a valid driver's permit to operate a motor vehicle throughout the State or Territory in which assigned, and be able to pass a Federal service driving test.

OTHER REQUIREMENTS

A few positions such as those calling for performance as a training specialist or consultant on ADP procedures may require some type of specialized knowledge or experience. Selective certification may be used to fill those few positions which require specialized training or experience.

HEALTH SYSTEM ADMINISTRATION SERIES

Health System Administration Series [1]

Health System Administrator, GS–12/15

Application of this Standard

The majority of these positions are filled through in-service placement actions. However, the basic provisions of this standard are designed for either competitive or in-service placement use.

DESCRIPTION OF WORK

Positions in this series have full line responsibility for the administrative management of a health care delivery system which may range from a nationwide network including many hospitals to a major sub-division of an individual hospital. The fundamental responsibility of health system administrators is to effectively use all available resources to provide the best possible patient care. This requires an understanding of the critical balance between the administrative and clinical functions in the health care delivery system, and an ability to coordinate and control programs and resources to achieve this balance. These positions require an ability to apply the specialized principles and practices of health care management in directing a health care delivery system. They do not require the services of a qualified physician. Additional information on the duties typical of the health system administration occupation can be found in the position classification standard for the series.

EXPERIENCE REQUIREMENTS

For Positions at GS–12 and Above:

Experience must be progressively responsible analytical and/or administrative management work in the health care field. Such work may be performed in an operating health care facility or at a higher organizational echelon with advisory or directional authority over such facilities. In any case, the work must have (1) involved a close working relationship with facility managers as well as analysis and/or coordination of administrative or other service activities with medical activities and (2) fostered development of the following knowledges, skills, and abilities:

—knowledge of missions, organizations, programs and requirements of health care delivery systems in general and in the country at large, and ability to acquire specific information on the unique characteristics of the particular system served;

—familiarity with regulations and standards of various regulatory and credentialing groups and ability to reconcile contradictory requirements;

—familiarity with government-wide agency and facility systems and requirements in various administrative areas such as budget, personnel, and procurement;

—recognition of the different functions and motivations of various employees and groups in the health care delivery system and ability to communicate effectively with each in order to gather information, present recommendations, and coordinate services;

—management ability including ability to delegate authority, evaluate and control people and programs, recognize and adapt to changing priorities; and

—understanding of the interrelationships and interdependencies among various medical and administrative services and programs, and ability to implement systems which integrate these activities.

QUALITY OF EXPERIENCE

Applicants for GS–12 and above must show at least one year of qualifying experience equivalent to the next lower grade in the Federal service. The applicant's training and/or experience must have been progressive and responsible, and must have demonstrated that the applicant has a good knowledge of current principles, practices, methods and techniques

[1] This standard has been approved by the Administrator of Veterans Affairs for use within the Veterans, Administration under the provisions of Section 4105, Title 38, U.S.C.

used in the analytical and/or management work in the health care field commensurate with the duties of the position involved. Applicants whose training and experience do not meet the quality requirements will not be eligible for appointment, even though they meet all of the other requirements.

IN-SERVICE PLACEMENT

Agency Sponsored On-The-Job Training Programs

Participation in agency sponsored on-the-job training programs in health system administration may be substituted for qualifying experience, when they include a formal, individualized training plan which is designed to "close-the-gap" between the qualifications which the individual brings to the job and the qualifications required for full performance as a health system administrator at the grade level for which the individual is being considered. Such a training program must be conducted in an operating health care system and must include:

—didactic assignments providing a knowledge of basic health system administration philosophies, practices and procedures, and basic government administrative policies and requirements;

—practical assignments providing an opportunity to apply health system administration skills and principles (as the individual progresses, work assignments must be characteristic of the grade level to which the individual is assigned); and

—oversight by an experienced health system administrator with periodic evaluation of the individual's progress and appropriate adjustment of the training program.

PHYSICAL CHARACTERISTICS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provisions of readers and interpreters, or adjusted work schedules. Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

BASIS OF RATING

Applicants may be selected from registers based on selective factors related to the knowledges and skills described in the position description. Applicants will be rated on the extent and quality of their experience and education.

Experience obtained in a GS–671 Health System Specialist position is interchangeable with experience obtained in a GS–670 Health System Administrator position *at the same grade level*, and may be credited accordingly.

HEALTH SYSTEM SPECIALIST SERIES

Health System Specialist Series [1]

Health System Specialist, GS–7/15

DESCRIPTION OF WORK

Positions in this series provide support to health care management officials by analyzing, evaluating, advising on and/or coordinating health care delivery systems and operations. Such positions may have an analytical orientation, an operational orientation, or a combination of the two. Located within an operating health care facility or at a higher organizational echelon, all positions in this series require knowledge of the basic principles and practices related to the management of health care delivery systems and the ability to apply this knowledge to solve the unique problems arising in the particular health care delivery system in which they serve. Additional information on the duties typical of the health system specialist occupation and on the characteristics which distinguish it from similar occupations can be found in the series definition and explanatory material published with the position classification standards.

EXPERIENCE REQUIREMENTS

Experience which is qualifying for GS–7 and above is progressively responsible analytical or administrative management work in the health care field. Such work may be performed in an operating health care facility or at a higher organizational echelon with advisory or directional authority over such facilities. In any case, the work must have (1) involved a close working relationship with facility managers as well as analysis and/or coordination of administrative or other service activities with medical activities and (2) fostered development of the following knowledges, skills and abilities:

—knowledge of missions, organizations, programs and requirements of health care delivery systems in general and in the country at large and ability to acquire specific information on the unique characteristics of the particular system served;

—familiarity with regulations and standards of various regulatory and credentialing groups and ability to reconcile contradictory requirements in preparing staff recommendations and/or in coordinating clinical and administrative services;

—familiarity with government-wide, agency and facility systems and requirements in various administrative areas such as budget, personnel and procurement; and

—recognition of the different functions and motivations of various employees and groups in the health care delivery system and ability to communicate effectively with each in order to gather information, present recommendations, and coordinate services.

QUALITY OF EXPERIENCE

Applicants must show at grades GS–7 through GS–11 at least six months of qualifying experience equivalent to the next lower grade or one year equivalent to the second lower grade in the Federal service. For positions at grade GS–12 and above, applicants must have had at at least one year of qualifying experience equivalent to the next lower grade. The applicant's record of experience and training must show that he/she has good use of analytical or administrative management knowledges and skills in the health care field commensurate with the duties involved. Applicants whose training and experience does not meet the quality requirements, even though they met all of the other requirements, will not be eligible for appointment.

SUBSTITUTIONS FOR THE EXPERIENCE REQUIREMENTS

For Positions at GS–7:

All of the experience requirements for the GS–7 level may be met by completion of a

[1] This standard has been approved by the Administrator of Veterans Affairs for use within the Veterans' Administration under the provisions of Section 4105, Title 38, U.S.C.

bachelor's degree in hospital administration, public health administration or in a directly related field such as business administration with course work in health care administration *and* one year of experience performing assignments in projects and problems concerning the mission, organization, program and operation of a health care delivery system using well established analytical methods and procedures.

OR

Education may be substituted for the requirements described above when represented by completion of one full academic year of graduate education in hospital administration, public health administration, or in a directly related field such as business administration with course work in health care administration.

OR

Experience that demonstrated an understanding of general principles in areas such as work processes, organizational functions, reorganization, personnel utilization and resource management. This experience should be equivalent to the completion of an above described bachelor's degree in hospital administration, public administration or in a directly related field such as business administration with course work in health care administration. *In addition*, one year of experience is required performing assignments in projects and problems concerning the mission, organization, program and operation of a health care delivery system using well established analytical methods and procedures.

For Positions at GS-9:

All of the experience requirements for the GS-9 level may be met by completion of all requirements for a master's or an equivalent degree, or two full academic years of graduate education in hospital administration, public health administration or in a directly related field such as business administration with course work in health care administration.

For Positions at GS-11:

All of the experience requirements for the GS-11 level may be met by completion of a doctoral degree (Ph. D. or equivalent) or three full academic years of graduate education in one of the fields described above.

IN-SERVICE PLACEMENT

Participation in agency sponsored on-the-job training programs in health system administration may be substituted for qualifying experience, when they include a formal, individualized training plan which is designed to "close-the-gap" between the qualifications which the individual brings to the job and the qualifications required for full performance as a health specialist at the grade level for which the individual is being considered. Such a training program must be conducted in an operating health care system and must include:

- —didactic assignments providing a knowledge of basic health system administration philosophies, practices and procedures, and basic government administrative policies and requirements;
- —practical assignments providing an opportunity to apply health system administration skills and principles (as the individual progresses, work assignments must be characteristic of the grade level to which the individual is assigned); and
- —oversight by an experienced health system administrator with periodic evaluation of the individual's progress and appropriate adjustment of the training program.

PHYSICAL CHARACTERISTICS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for

appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provisions of readers and interpreters, or adjusted work schedules. Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

BASIS OF RATING

Applicants will be rated on the extent and quality of their experience and education.

Experience obtained in a GS–670 health system administrator position is interchangeable with experience obtained in a GS–671 health system specialist position *at the same grade level* and may be credited accordingly.

HOSPITAL HOUSEKEEPING MANAGEMENT SERIES[1]

Hospital Housekeeping Officer
Assistant Hospital Housekeeping Officer
Hospital Housekeeping Program Specialist
Hospital Housekeeping Assistant
Grades GS–5/15

DESCRIPTION OF WORK

The principal duties of hospital housekeeping management positions are to advise on, supervise, or perform work involving the development, coordination, direction, and management of hospital housekeeping programs. The major concern of such programs is the maintenance of environmental sanitation within acceptable levels of bacteriological as well as visual cleanliness. The series is limited to positions of managers and assistant managers of hospital housekeeping programs, trainees for such positions, and program specialists at organizational echelons above the local hospital level. Additional information on the duties typical of the hospital housekeeping management occupation and the characteristics which distinguish it from supervisory positions in the hospital housekeeping area can be found in the position classification standard for the Hospital Housekeeping Management Series, GS–673.

EXPERIENCE REQUIREMENTS

Except for the substitution of education provided for below, applicants must have the amount and type of experience indicated in the following table for each grade level:

Grade	General experience (years)	Specialized experience (years)	Total (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11 and above	3	3	6

General Experience

General experience is progressively responsible supervisory, administrative, professional, technical or other type of experience which demonstrates:

(a) Ability to supervise and to deal effectively with individuals or groups; or

(b) Ability to estimate costs and material needs, and to control expenditures of resources; or

(c) Practical knowledge of the hospital environment—its functions, work schedules, the makeup of its work force, etc.; or

(d) Practical knowledge of one or more facets of general housekeeping management—such as laundry operation, sanitation, infection control, or interior decoration.

The kind of work experience creditable under general experience includes:

(a) Experience demonstrating a practical working knowledge of supervision and management.

(b) General administrative experience in institutional or building maintenance with duties including responsibility for employing and directing a housekeeping, laundry, or maintenance force; and responsibility for planning work schedules on both a short- and long-term basis.

(c) Performance of administrative duties which included estimating budget requirements, planning expenditures of funds, estimating materials and equipment needs, supervising employees, and recommending personnel actions.

(d) Experience as a teacher of formal courses in instruction related to supervision or management.

(e) Experience which demonstrates a practical knowledge of methods by which bacteria and viruses are spread and of preventive and control measures.

Routine clerical work and nonsupervisory trade, craft, custodial, or maintenance work is not acceptable qualifying general experience.

Specialized Experience

Specialized experience is progressively responsible experience in hospital housekeeping

[1] This standard has been approved by the Administrator of Veterans' Affairs for use within the Veterans' Administration under the provisions of Section 4105, Title 38 of the United States Code.

management or hospital administration that demonstrates:

—Practical working knowledge of basic principles of chemistry, biology, and bacteriology as applied to environmental sanitation, infection control, and choice and use of cleaning agents and equipment;

—Knowledge of hospital housekeeping methods and techniques; of various floor, wall, and ceiling covering materials and their properties; and of current developments concerning new cleaning agents, techniques, and equipment;

—Knowledge of hospital organizations, operations, and routines as related to the hospital housekeeping program;

—Ability to develop procedures which mesh the specific goals of the hospital housekeeping department with the broad overall goals of the hospital, and ability to work with other hospital managers to coordinate respective programs;

—Ability to analyze problems and make decisions taking into full consideration a wide range of factors and requirements; e.g., standards of the Joint Commission on Accreditation of Hospitals, budgetary and personnel restrictions, public relations, labor relations, etc.;

—Familiarity with Government-wide, agency, and hospital rules and regulations in areas such as budget, personnel, and labor relations; and ability to develop operating procedures for implementing these requirements in the hospital housekeeping program.

In all cases the specialized experience must demonstrate the ability to perform fully the duties and responsibilities of the position for which application is being made.

For Hospital Housekeeping Officer positions, the specialized experience must clearly demonstrate that applicants can independently manage an effective hospital housekeeping program and coordinate the program with other hospital activities. Since the physical characteristics of the hospital served have a direct impact on the administrative complexity of the Hospital Housekeeping Officer position, careful consideration should be given to the size and complexity of the hospital in which the specialized experince was obtained. The position classification standard for the Hospital Housekeeping Management Series contains information on the impact of a hospital's physical characteristics on the Hospital Housekeeping Officer position. For Hospital Housekeeping Officer positions which include responsibility for the management of laundry, interior decoration, or other substantive technical areas, evidence of ability to manage such programs is also required.

For positions of Hospital Housekeeping Program Specialist, experience must have demonstrated ability to plan and develop program guidance materials, to evaluate the effectiveness of individual hospital housekeeping programs, and to work effectively at a staff level in directing hospital housekeeping programs.

Any excess of specialized experience may be substituted on an equal basis for general experience.

Quality of Experience

The applicant's experience must have been of a progressively responsible nature and must demonstrate the ability to perform fully at the grade level for which application is being made.

For positions at grades GS–7 through GS–11, at least 6 months of the specialized experience must have been at a level equivalent to the next lower grade or 1 year equivalent to the second lower grade in the Federal service. For positions at Grade 12 or above, applicants must have had at least 1 year of specialized experience equivalent to the next lower grade.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

For general experience, study successfully completed in an accredited institution of higher learning can be substituted for general experience where the course included at least (1) an average of four semester hours per academic year in sanitary science or engineering, institutional sanitation or administration, hospital administration, hotel administration, public administration, or business administration (singly

or in combination); or (2) eight semester hours in either chemistry or biological sciences (excluding botany, plant sciences, and agricultural sciences); or (3) other study equally pertinent to the duties to be performed, may be substituted at the rate of one academic year of study for nine months of experience, up to a maximum of four years of education for three years of general experience.

For specialized experience: Positions requiring specialized experience are not usually filled by applicants who qualify solely on the basis of academic preparation. However, in the relatively few situations where graduate study is to be considered as a substitution for exprience, the successful completion of one year of graduate study toward a master's degree in public health or business administration with major study in hospital administration, may be substituted for one year of specialized experience. Also, one year of a formalized hospital administrative residency or internship in either the field of hospital administration or hospital housekeeping management may be substituted for one year of specialized experience. Two years of specialized experience is the maximum for which such education may be substituted. One year of this kind of training will be considered as fully qualifying for GS–7 or two years of training for GS–9.

WRITTEN TEST

Applicants for positions at grades GS–5 and GS–7 must pass an appropriate qualifying written test. The written test is not required for in-service placement actions. It is required for new appointments outside the register.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to safely and efficiently perform the essential functions of the position. Usable vision is required, and depending on the essential duties of a specific position, usable hearing or speech may be required. Normal color vision may also be required for some positions. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform. Reasonable accommodation may include, but is not limited to, job modification, provision of assistive devices, job restructuring (eliminating or modifying nonessential job duties), and/or provision of readers for blind persons and interpreters for deaf individuals.

BASICS OF RATING

Applicants for positions at GS–5 and →GS–7, who meet the minimum qualification requirements, including a passing score on the written test, will be rated on a scale of 70 to 100 based upon their scores on the written test.← No written test is required for positions at grade GS–9 or above, and these applicants will be rated on the amount and quality of their experience, education, and training in relation to job requirements. Ratings will be based upon competitors' statements in their applications, and upon any additional information which may be supplied to or requested by the Civil Service Commission. When ranking applicants, additional qualifications credit may be given for such consideration as:

a. Having written or published technical papers or articles having a direct bearing on hospital housekeeping management.
b. Having excess, good quality experience over that required for the grade for which the applicant is being rated.
c. Having had responsibility, in addition to actually managing a hospital housekeeping program, for planning and conducting an organized program for the training and development of hospital housekeeping management trainees.
d. Off-the-job activities which reflect leadership and interest in the field of hospital housekeeping management, such as active participation in the program of the National Executive Housekeeping Association, or completion of the certificate course sponsored by NEHA.

MEDICAL RECORD TECHNICIAN SERIES[1]

Medical Record Technician GS-4/7[2]

DESCRIPTION OF WORK

Medical record technicians analyze medical records for completeness, consistency, and compliance with requirements; code medical record information; and retrieve and compile medical record data. The work requires application of a practical knowledge of medical terminology, anatomy, physiology, the internal organization and consistency of the medical record, medical record references and procedures, and the medical and legal significance of medical records.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Experience requirements

Candidates must have experience as described below. (Education may be substituted for experience.)

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-4	1½	½	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5

General experience

General experience is that which has provided (*a*) knowledge of clerical procedures that would be helpful in developing skill in medical record technician work *or* (*b*) background knowledge of the medical environment or hospital procedures. Such experience may have been gained in positions such as the following:

1. General clerk, file clerk, or typist
2. Correspondence clerk
3. Statistical clerk
4. Nursing assistant or practical nurse
5. Medical technician, X-ray technician, medical corpsman
6. Dictating machine transcriber

Specialized experience

This is experience which has provided the knowledges and skills needed to perform medical record technician work. The specialized experience must have provided the candidate with a basic knowledge of medical terminology and medical record procedures and techniques. The specialized experience required for GS-4 may have been gained in positions such *as the following located in a medical facility:*

—Medical record clerk
—Admission or discharge clerk
—Statistical clerk
—Coding clerk
—Medical administrative specialist (military experience)
—Dictating machine transcriber (of medical information)

The specialized experience required for GS-5 and above must have included the analysis of medical records for completeness, consistency, and compliance with requirements.

Supervisory positions

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook should be used in conjunction with this standard.

Quality and level of experience

For eligibility at grade GS-4, the 6 months of required specialized experience must have been comparable in difficulty and responsibility to the GS-3 level.

For eligibility at grade GS-5, at least 1 year of the required experience must have been comparable in difficulty and responsibility to the GS-4 level. At least 6 months of this experience at the GS-4 level must have been specialized experience that included the analysis of medical records for completeness, consistency, and compliance with requirements.

For eligibility at grades GS-6 and GS-7, at least 1 year of the required specialized experi-

[1] This standard has been approved by the Administrator of Veterans Affairs for use within the Department of Medicine and Surgery of the Veterans Administration under the provision of Section 4105, title 38, U.S.C.

[2] The qualification standard for Clerk, GS-300-3 is to be used for filling Medical Record Clerk positions at the GS-3 level.

ence must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must demonstrate that he possesses the ability to perform the duties of the position.

SUBSTITUTION OF EDUCATION AND TRAINING FOR EXPERIENCE

Successfully completed education and training of acceptable type and quality may be substituted for the experience requirements, as specified below:

1. Successful completion of 2 years of study in an accredited junior college, college, or university may be substituted for 2 years of general experience.
2. Successful completion of a course for (*a*) medical technicians, (*b*) hospital corpsmen, (*c*) medical service specialists, or (*d*) hospital training, obtained in a training program given by the Armed Forces or the U.S. Maritime Service under close medical and professional supervision, may be substituted on a month-for-month basis for up to a total of 1 year of general experience.
3. Successful completion of a post-high school course of study in medical record technology, which included course work in anatomy, physiology, and medical record techniques and procedures, may be substituted for specialized experience on a month-for-month basis for up to a total of 1 year of specialized experience.
4. Successful completion of post-high school courses for medical administrative personnel, obtained in a closely supervised training program given by the Armed Forces, may be substituted for specialized experience on a month-for-month basis for up to a total of 6 months experience. The training must have included courses in anatomy, physiology, and medical record techniques and procedures.
5. Successful completion of 2 academic years of post-high school study in a resident school or institution of medical record technology, or a related health care field that included course work in anatomy, physiology, and medical record techniques and procedures, may be substituted in full for the 2 years of experience required at the GS–4 level (1½ years general and ½ year specialized).

Appropriate education and training other than that outlined above, such as in "new careers" training programs, manpower development programs, and inservice training programs will be granted credit depending upon its applicability and extent.

Post-high school education or training which is acceptable under these standards may be substituted for part of the required experience on a pro rata basis.

BASIS OF RATING

No written test is required. Competitors for all positions will be rated on the quality and extent of experience, education, or training in relationship to the duties of the positions.

The information for evaluating experience, education, and training will be taken from the application form and any additional information which may be obtained through reference inquiries to supervisors, teachers, and others.

INSERVICE PLACEMENT

Waiving directly applicable specialized experience requirement at GS–4

For inservice placement actions only, the requirement for directly applicable specialized experience at grade GS–4 may be waived for lateral reassignment or promotion of candidates provided:

1. The candidate has had experience which has provided a general familiarity with the work of the position for which he is being considered, and

2. The candidate's experience and performance clearly indicate the possession of necessary skills and abilities, and evidence potential for successful performance of the work.

GUIDE FOR EVALUATION OF CANDIDATES IN RELATION TO JOB REQUIREMENTS

Methods of evaluation

Useful procedures for evaluating candidates for technician positions are described in FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement. Several procedures, including job element rating, are suggested in this material, one or more of which may be appropriate for the positions in this series.

Evaluation of education

The American Medical Association, in collaboration with the American Medical Record Association, accredits educational programs in medical record technology. Appropriate credit should be given to candidates who attended institutions offering such educational programs.

The American Medical Record Association offers a correspondence course in medical record technology. Part II of this handbook includes provisions for crediting correspondence school education. The American Medical Record Association also issues certificates to those who complete (*a*) the correspondence course, or a course of study at an accredited institution of medical record technology, *and* (*b*) pass a written examination. Completion of the requirements for certification should be considered in evaluating the knowledges and abilities of candidates.

Evaluation of personal attributes

For technician positions, the evaluation of qualifications logically includes appraisal of personal attributes and characteristics as demonstrated in performance on the job. This includes the degree and scope of the candidate's technical knowledge, skills, and abilities which can be brought to bear upon duties in the position to be filled. Following are some of the more desirable abilities and personal characteristics for candidates for medical record technician positions:

a. Knowledge of specific medical record techniques and procedures involved in the given work situation;
b. Attention to details;
c. Ability to work independently;
d. Reasoning ability;
e. Organizing ability in performing coding, analysis, and other routine functions in an orderly and systematic fashion;
f. Accuracy of work in performing analysis, coding, and other routine functions;
g. Ability to get along with and gain the cooperation of medical and administrative personnel in the health care facility.

In determining the extent to which candidates possess such knowledges, skills, and abilities, a job element approach may be helpful. The Job Qualification System for Trades and Labor Occupations (Handbook X–118C of May 1969), discusses the job element procedures and techniques to be used in obtaining information from applicants and measuring their qualifications. That material may be adapted for use for this occupation. Since many positions in this series are filled through inservice placement, the procedures and questions to be asked of candidates should be tailored to the requirements of the specific position and the labor market. The material on pages 21 to 29, "Rating for Inservice Placement," of the *Internal Qualification Guides for Trades and Labor Jobs*, will be especially helpful.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 5. In addition, all candidates must possess emotional and mental stability.

Medical Clerk, GS–2,3, and above

Description of Work

Medical clerks perform clerical work in support of the care and treatment given to patients in a ward, clinic, or other such unit of a medical facility. This work includes functions such as serving as receptionist; performing recordkeeping duties; performing clerical duties relating to patient care and treatment; and providing miscellaneous support to the medical staff of the unit. This work requires a practical knowledge of the medical facility's organization and services, the basic rules and regulations governing visitors and patient treatment, and a practical knowledge of the standard procedures, medical records, and medical terminology of the unit supported.

NOTE: For experience, training, and other requirements, refer to the qualification standard for the General Administrative, Clerical and Office Services Group, GS–300, for Clerk (various positions) GS–1,2,3 and Clerk 4/6.

DENTAL OFFICER SERIES[1]

Dental Officer GS-11/15

Dental Officer (specialized fields) GS-13/15

This standard applies to all positions in the Dental Officer Series, GS-680, except positions in the Dental Public Health Specialty and research positions. It applies to positions which are, or may be, established in the following dental specialties officially recognized by the American Dental Association:[2]

Oral Surgery
Prosthodontics
Pedodontics
Periodontics
Endodontics
Orthodontics
Oral Pathology

DESCRIPTION OF WORK

Dental officers advise on, administer, supervise or perform professional and scientific work in the prevention, diagnosis and treatment of diseases, injuries and deformities of the teeth, the jaws, organs of the mouth, and other structures and connective tissues associated with the oral cavity and the masticatory system.

MININUM EDUCATION REQUIREMENTS

All applicants must meet one of the following requirements (A or B):

A. Graduation with a degree in dental surgery (D.D.S.) or dental medicine (D.M.D.) from a U.S. or Canadian school approved by the Council on Dental Education, American Dental Association.

B. Graduation with a degree in dental surgery (D.D.S.) or dental medicine (D.M.D.) or equivalent degree from a dental school (other than those covered in A above) *provided* the education and knowledge acquired are substantially equivalent to that of graduates of dental schools described in A above. Such comparability may be evidenced by a current license to practice dentistry in a State, territory or commonwealth of the United States, or in the District of Columbia provided the licensure requirements include a written examination measuring science achievement and a performance examination measuring clinical competence.

LICENSURE REQUIREMENT

Applicants must be currently licensed to practice dentistry in a State of the United States, in the District of Columbia, or commonwealth of Puerto Rico.

In accordance with the District of Columbia Statutes which require it, all dental officers appointed to positions in the D.C. Government for work within the geographical limits of the District, must have a current and full or unrestricted District of Columbia license to practice dentistry.

ADDITIONAL EXPERIENCE AND/OR TRAINING REQUIREMENTS

Applicants must have experience and/or training beyond the undergraduate dental school level as follows:

Grade	Years
GS-11	None
GS-12	2
GS-13	*3
GS-14/15	*5

*For Dental Officer (specialized field), the additional experience and/or training must be in the appropriate specialty.

Additional experience and/or training may be of one of the following types:

—post licensure professional experience in the general practice of dentistry;
—approved internship training;
—approved residency training;
—graduate-level study in an accredited dental school;
—post licensure professional experience in a specialized area of practice;

[1] This standard supersedes the standard for this series that was issued in July 1966.

[2] See the section entitled "Background" in the position-classification standard for the Dental Officer Series, GS-680, for list of approved specialties and related information.

—other advanced study or training (outside a dental school or hospital) creditable towards satisfaction of training program requirements for Board eligibility.

For GS–12 positions at least 1 year of the additional experience and/or training required must be either professional practice experience or internship or residency training.

SPECIALIST POSITIONS

The additional experience and training for specialist positions must clearly establish the applicant's status as a specialist. Three or more years of experience which includes some work in a specialized area of practice (e.g., children constitute majority of patient's treated) does not, of itself, provide the required evidence of specialist qualifications. Determining specialist qualifications involves an intensive examination of the total character of the applicant's background of experience and training. This examination requires a review of the types and difficulty of the cases dealt with, the level of knowledge and understanding of the specialization regularly required, and the degree of diagnostic skills and treatment planning ability involved. Invariably, specialization requires that professional practice be supplemented by pertinent graduate level study.

Specialty training and experience for GS–13 positions must have provided the applicant with the advanced knowledges, skills and abilities needed to diagnose and treat very difficult cases in the specialty with very little or no consultation.

Specialty training and experience for GS–14 specialist positions must have provided the applicant with knowledges, skills, and abilities equivalent to those acquired a Board eligible.

Certification as a diplomate by a national certifying board for a specialized area of practice will establish eligibility for GS–14 specialist positions.

SPECIAL PROVISION FOR QUALITY INTERNS

The additional experience and/or training requirements for grade GS–12 will be met by completion of an approved internship in which the applicant demonstrated superior achievement and ability. "Superior achievement and ability" is defined as that demonstrated by an intern who, on the basis of an evaluation of all interns who have completed training in the same hospital in the same kind of internship program over the past 5 years, would fall into the upper half of the group.

QUALITY OF EXPERIENCE AND TRAINING

In addition to meeting the requirements set forth above for education, licensure, and length and kinds of additional experience and/or training, applicants must present training and experience of the quality described below.

The additional training and/or experience must have been progressive and responsible, and, as a minimum, give evidence that the applicant has a good knowledge of current principles, practices, methods and techniques in dentistry. For specialist positions, it must give strong evidence that the applicant has a thorough knowledge of current principles, practices, methods and techniques in his specialized area of dentistry.

For positions at grade GS–13 and above, 1 year of the required experience must have been at a level of difficulty and responsibility equivalent to that of the General Schedule grade next below the grade for which the applicant is being considered. For specialist positions, such required experience must also have been in the appropriate specialty.

DEFINITION OF TERMS

Approved internship; approved residency.—This is training in a hospital dental internship or residency (as the case may be) approved by the Council of Dental Education of the American Dental Association.

Graduate-level study.—This is either dental school graduate study leading to an advanced degree such as Master of Science, or postgraduate (non-degree) dental school study involving a level of instruction, comparable to that provided in a graduate degree program.

National certifying board.—This is an examining board in a special area of dental practice recognized by the Council on Dental Education of the American Dental Association.

Board eligibility.—Qualification for examination by a national certifying board as a result of having met the advanced training program requirements for a dental specialty.

→*Supervisory positions*

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

QUALIFICATION INQUIRIES

In order to obtain information that the applicant possesses high professional and personal qualifications, confidential inquiries, including contacts with superiors and associates, may be made.

INTERVIEWS

Prior to appointment, applicants who meet the education, experience and other requirements may be required to appear for an interview. The purposes of the interview are to observe and evaluate personal characteristics essential to successful performance of the duties of the position—for example, characteristics such as patience, tact, understanding, and emotional stability.

BASIS OF RATING

Ratings will be based on an evaluation of the applicant's total experience and training, as evidenced in the application and upon any additional evidence received by the Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 5. In addition, applicants must be able to distinguish shades of colors and must possess emotional and mental stability.

DENTAL ASSISTANT SERIES[1]

Dental Aid, GS-1
Dental Assistant, GS-2/5
Dental Assistant (Expanded Function), GS-5/6

DESCRIPTION OF WORK

Dental Assistants provide assistance to the dentist by receiving and preparing patients for dental treatment, preparing materials and equipment for use by the dentist, assisting dentist at chairside or bedside in the treatment of patients, taking dental radiographs, and maintaining records related to appointments, examinations, treatment and supplies. Dental Assistants may work in general dentistry or in a specialized field of dentistry such as prosthodontics or oral surgery.

Dental Assistants (Expanded Function) are primarily concerned with the performance of reversible intra-oral procedures, such as placing and finishing restorations in teeth prepared by dentist. Dental Assistants (Expanded Function) also perform chairside assistance and other services typically provided by dental assistants.

For more information on the work of this occupation see the position classification standard for the Dental Assistant Series, GS-681, dated September 1977.

MINIMUM QUALIFYING EXPERIENCE

For positions at GS-1, no written test, experience, training, or education is required. Candidates must be willing to perform simple dental aid work and show ability to follow specific instructions. Evidence of this ability may be obtained from personal references, interviews, etc.

For positions at GS-2, six months of experience is required which has provided a knowledge of simple clinic maintenance procedures such as clearing work areas of used materials; replacing soiled linens; storing medical and dental supplies; and filing records in alphabetic or numeric order. Such experience may have been gained in a clinic, hospital or scientific laboratory environment.

For positions at GS-3, one year of experience is required which has provided all of the following knowledges:

—knowledge of clinical routines and procedures such as receiving, routing, and scheduling patients, ordering supplies, requesting medical or dental laboratory work;
—knowledge of the use, care and storage of dental, medical, or laboratory instruments, materials and equipment;
—knowledge of sterilization techniques sufficient to sterilize dental instruments and materials; and
—knowledge of dental or medical terminology to maintain records related to patients, supplies and recurring medical or dental activities.

Such experience may have been gained in a clinic, hospital or scientific laboratory, or on active military duty which was directly related to patient care, practical nursing experience, or other experience which has provided a knowledge of the terminology, problems, etc., in a medical or dental treatment situation.

For positions at GS-4 and above, candidates must have had 1 year of qualifying experience at the next lower grade in the General Schedule or equivalent experience outside the General Schedule. Qualifying experience at this level is experience in dental assistance to general or specialized dentistry, dental assistant (expanded function) work or any combination of these appropriate to the position being filled.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of Handbook X-118 should be used in conjunction with this standard.

SUBSTITUTIONS OF EDUCATION AND TRAINING FOR EXPERIENCE

1. For positions at GS-2, completion of a full four-year high school curriculum or high school equivalency is qualifying.

[1] This standard has been approved by the Administrator of Veterans Affairs for use within the Veterans Administration under the provisions of section 4105, title 38, U.S.C.

2. For positions at GS–3, the following education and training may be substituted for experience requirements:

—successful completion of a one-year dental assistant program or completion of one year of a dental hygiene program accredited by the American Dental Association's Commission on Accreditation is fully qualifying;

—successful completion of practical nurse training approved by the appropriate State or District of Columbia accrediting body is qualifying;

—completion of education and training other than that outlined above, which is directly related to the routines, procedures, and terminology used in a medical or dental treatment situation may be substituted on a month-for-month basis for the experience requirements. Examples of this training may include, but are not limited to, the U.S. Armed Forces, manpower development, or inservice training programs.

3. For positions at GS–4, the following may be substituted:

—successful completion of a two-year dental assistant program or completion of a two-year dental hygiene program accredited by the American Dental Association's Commission on Accreditation is fully qualifying;

—other training and education which is directly applicable to the performance of dental assistant work may be substituted on a month-for-month basis for the experience requirements. Examples of this training include, the U.S. Armed Forces, manpower development, or inservice training programs.

4. Special Requirements for Dental Assistant (Expanded Function) positions, GS–5 and above.

Candidates for Dental Assistant (Expanded Function) positions must have completed one year of acceptable coursework, preceptorship, or other formal training and/or work assignments specifically designed to equip the candidate with the knowledges and skills required to perform intra-oral procedures involved in the position to be filled, including:

—knowledge of the methods and techniques used in dentistry to perform intra-oral procedures;

—knowledge of the characteristics of a variety of materials and instruments used in performing intra-oral procedures; and

—ability to recognize common dental disorders and conditions such as caries, formations of plaque and calculus, and inflammation of gums.

Examples of acceptable training are:

—courses in a dental hygiene or dental assistant program accredited by the American Dental Association's Commission on Accreditation which are directly related to intra-oral procedures (also referred to as expanded functions) to be performed in the position to be filled;

—U.S. Army's Dental Therapy Assistant Training Program;

—continuing education courses in expanded functions for dental assistants offered by the Indian Health Service of Department of Health, Education, and Welfare;

—other training comparable to the above in private or governmental hospitals, clinics or schools which include formal classroom instruction and clinical training in the knowledges and skills required to perform intra-oral procedures in the position to be filled.

Training may be credited on a month-for-month basis for the experience requirements. Dental Assistant (Expanded Function) positions at GS–6 require one year experience comparable to that of GS–5 level Dental Assistant (Expanded Function). The total experience, education and training must have prepared candidate to fully perform the duties of the position.

A written test is required at grade GS–2 and is not to be waived for appointment outside the register, unless authorized by the Office of Personnel Management.

For inservice placement actions, the test is *not* required. If a test is used it may not be used on a pass-fail basis. For information on when and how a test may be used in evaluating eligible employees, see FPM Supplement 335–1.

BASIS OF RATING AND RANKING CANDIDATES

Candidates who meet the minimum qualification requirements, including a passing score on the written test, when required, will be rated on a scale of 70 to 100 based on:

For positions at grade GS–1—an evaluation of the candidate's willingness to do simple and repetitive dental aid work, dependability, and ability to work safely.

For positions at grade GS–2—the candidate's score on the written test.

For positions at grades GS–3 and above—an evaluation of the quality and extent of the candidate's experience, education, training or other achievements pertinent to the duties of the position being filled.

In ranking candidates who have met the minimum experience requirements, candidates with dental assistant training should be ranked higher based on the recognition that dental assistant training is more specifically focused on the knowledge, skills, and abilities required by dental assisting work.

For inservice placement actions at any grade—the basis of rating established by the agency in accordance with FPM Supplement 335–1.

PERSONAL CHARACTERISTICS

Dental Assistant and Dental Assistant (Expanded Function) positions involve significant contacts with patients. Candidates must demonstrate the ability to work with patients in a tactful and courteous manner, and relieve fears, and comfort their patients.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to safely and efficiently perform the essential functions of the position. Usable vision is required and, depending on the essential duties of a specific position, usable hearing and speech may be required. However, in most cases, a specific physical condition or impairment other than complete loss of vision will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform. Reasonable accommodation may include, but is not limited to: job modification, provision of assistive devices and/or job restructuring.

DENTAL HYGIENE SERIES [1]

Dental Hygienist, GS–4/8
Community Health Dental Hygienist, GS–5 and Above

DESCRIPTION OF WORK

Dental Hygienists work in hospitals and outpatient clinics performing oral prophylaxis; applying topical fluorides and desensitizing agents to the teeth; performing examinations of the teeth and surrounding tissues involving the use of diagnostic tests and X-rays; preparing treatment plans for plaque control; instructing individual patients, patient groups, nurses and nursing assistants or other dental hygienists and dental assistants in the techniques and practice of maintaining oral health.

Community Health Dental Hygienists work primarily in nonclinical settings on military installations or in public health program areas planning and carrying out dental health programs to promote public awareness, acceptance, and practice of oral health measures for groups of individuals and communities. Typically, they plan and conduct oral health instructional programs directed toward the needs of various community groups, provide technical advice and assistance to dental personnel on public health matters relating to oral health, make onsite visits to provide policy guidance and insure consistency among areas in accomplishing the objectives of the dental program, conduct surveys and special studies to evaluate the effectiveness of the oral health program and to recommend new or improved methods of oral hygiene, plan and conduct dental inspection programs, develop teaching aids and materials used to improve the oral health of the community, present lectures and demonstrations in new or improved dental techniques and developments, and prepare and compile a variety of records and reports pertaining to the administration of the oral health program.

For more information about the work of this occupation refer to the Position Classification Standard for the Dental Hygiene Series, GS–682.

LICENSURE REQUIREMENTS

Applicants for all grades and specifications must be currently licensed to practice as dental hygienists in a State or territory of the United States or the District of Columbia.

EXPERIENCE REQUIREMENTS FOR CLINICAL DENTAL HYGIENE POSITIONS

For positions at GS–4, no experience is required.

For positions at GS–5, one year of experience as a licensed dental hygienist. This is experience in performing routine oral prophylactic care such as: scaling and polishing the teeth, applying topical flourides and desensitizing agents to the teeth, taking X-rays, sterilizing instruments and instructing patients at chairside in brushing and flossing techniques.

For positions at GS–6, two years of experience as a licensed dental hygienist of which at least one year included duties such as: examining the patient's teeth and surrounding tissues; cleaning, polishing, and applying topical fluorides and other anticariogenic agents to the teeth; treating common abnormalities such as inflammations of the gums; taking and interpreting X-rays for presence of calculus and providing oral health care instructions to individuals and groups of patients.

For positions at GS–7, three years of experience as a licensed dental hygienist of which at least one year included duties such as: performing oral prophylaxis in cases of acute gingivitis and periodontal diseases requiring the use of a variety of scalers and ultrasound equipment; performing deep scaling, root planing, and subgingival curettage; taking intraoral impressions; placing temporary fillings; placing and removing rubber dams; planning dental hygiene treatment and series of appointments needed to complete treatment; providing oral hygiene instructions to patients with special problems, and training other hygienists and

[1] This standard has been approved by the Administrator of Veterans Affairs for use within the Veterans Administration under the provisions of Section 4105, Title 38, U.S.C.

dental personnel in dental hygiene techniques and procedures.

For positions at GS–8, four years of experience as a licensed dental hygienist of which at least one year included advanced prophylactic and therapeutic hygiene procedures in the treatment of patients with related medical and dental problems. This includes duties such as: performing oral prophylaxis on ambulatory and nonambulatory patients requiring specialized procedures for bedridden patients; preparing dental hygiene treatment plans for patients including assessment of the oral problem, type of oral hygiene care required, and the sequence of appointments needed to complete treatment; presenting lectures and demonstrations to various patient groups such as diabetics and oral cancer patients requiring the use of motivation techniques, dental aids, and educational materials; performing advanced dental hygiene procedures such as root planing and curettage under local anesthesia, polishing and finishing amalgam restorations and inserting temporary fillings in teeth.

EDUCATION AND EXPERIENCE REQUIREMENTS FOR COMMUNITY HEALTH DENTAL HYGIENE POSITIONS

For positions at all grades applicants must meet the basic requirements specified under paragraph A or B below:

A. Successful completion of a full four-year course of study in an accredited college or university leading to a bachelor's degree which must have included or been supplemented by successful completion of a full academic curriculum in dental hygiene accredited by the American Dental Association's Commission on Dental Accreditation.

B. Experience in an amount which, in combination with successful completion of a full academic curriculum in dental hygiene accredited by the American Dental Association's Commission on Dental Accreditation, is sufficient to total at least four years of experience and education. Appropriate experience may be equated to education on a year-for-year basis. To be appropriate, this experience must have demonstrated that the applicant possesses the following:
—ability to plan and direct group activities.
—ability to organize, analyze, and evaluate data; to draw conclusions; and to make decisions or recommendations.
—ability to express ideas and communicate information orally and in writing in a clear, logical, and motivating manner.
—ability to demonstrate and/or present new ideas, techniques, and procedures.
—ability to conduct meetings and present lectures.
—ability to deal effectively with individuals and with groups.

Examples of work which may provide this experience include work as a teacher, recreation leader, or leader in a community or professional association.

For positions at GS–5, the basic requirements which apply to all grades are fully qualifying.

For positions at GS–7 and above, in addition to the basic requirements, the following amounts of specialized experience are required:

Grade:	*Specialized experience (years)*
GS–7	1
GS–9	2
GS–11 and above	3

Specialized experience is experience in dental hygiene or in a directly related kind of work which has demonstrated that the applicant possesses the knowledges, skills, and abilities to perform fully the work of the position to be filled. Examples of work which are considered specialized experience include:

—Experience in preparing and conducting educational lectures and demonstrations on dental hygiene.
—Experience in planning and developing public health type programs of broad scope,

e.g., for varying age groups and types of audiences.

—Experience in supervising or instructing groups of dental hygienists in the performance of dental hygiene duties.

—Other experience in performing the duties of a community health dental hygienist as described in the "Description of Work" above.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

For Clinical Dental Hygiene Positions successful completion of a full four-year course of study in an accredited college or university leading to a bachelor's degree in Dental Hygiene or in a directly related field of study such as public health, health education, or education may be substituted in full for the experience required at grade GS–5.

For Community Health Dental Hygiene Positions successful completion of one full academic year of graduate education in dental hygiene or in a directly related field of study such as public health, health education, or education may be substituted in full for the specialized experience required at grade GS–7.

Successful completion of all requirements for a master's or equivalent degree in dental hygiene or in a directly related field of study (as described above) may be substituted in full for the specialized experience requirements at grade GS–9.

Education may not be substituted for the full experience requirements above the grade GS–9.

QUALITY OF EXPERIENCE

For each grade creditable experience must have equipped applicants with the knowledge, skills, and abilities to perform fully the duties of the position being sought.

Applicants must demonstrate progressively responsible experience of a scope, quality, and degree such as to have equipped them with the ability to perform duties at the grade level of the position for which the application is made. Typically, this is demonstrated by accomplishment of assignments of the difficulty and responsibility described in the position classification standard used to evaluate positions at the next lower grade in the normal line of promotion to the position being filled. (See also 5 C.F.R. 300, Subpart E.)

SUPERVISORY POSITIONS

For supervisory positions, apply the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X–118, in conjunction with this standard.

EMPLOYMENT INTERVIEW

Applicants who meet the minimum experience, training, and other requirements may be requested to appear for an employment interview. The purpose of this interview is to observe and evaluate personal characteristics and qualifications which are essential to the successful performance of the duties of the position.

BASIS OF RATING

No written test is required. Applicants will be rated on a scale of 70 to 100 based on an evaluation of the quality and extent of their experience, education, and training or other achievements pertinent to the duties of the positions to be filled. Such ratings will be based upon statements of candidates in their applications, upon qualification inquiries, and upon additional information that may be secured by the examining office.

For inservice placement actions at any grade the basis of rating is established by the agency in accordance with FPM Supplement 335–1.

For all positions, the rating of experience and education may take into account the recency of the experience and education. Extra credit may be given to applicants who show evidence of efforts to keep current in their field. Such evidence might consist of completion of continuing education courses, active membership in the American Dental Hygiene Association, or hav-

ing attended training conferences, seminars, or similar educational meetings.

ACCREDITED SCHOOLS

A listing of accredited schools of dental hygiene may be secured from the American Dental Association, Commission on Dental Accreditation, 211 East Chicago Avenue, Chicago, Illinois 60611.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the positions without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of prosthesis or mechanical aid. Reasonable accomodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistance devices, job modification or restructuring provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

DENTAL LABORATORY AID AND TECHNICIAN SERIES[1,2]

Dental Laboratory Aid GS-1/3
Dental Laboratory Technician GS-4/9

DESCRIPTION OF WORK

Dental laboratory aids and technicians perform laboratory support and technical work in the construction and repair of dental prosthetic appliances on prescription of a dentist.

Dental laboratory aids perform such laboratory support work as packing or unpacking incoming or outgoing cases, maintaining stocks of laboratory materials, and cleaning, storing, or checking laboratory equipment. Dental laboratory aids assist dental laboratory technicians by measuring and mixing materials, or performing other tasks to gain acquaintance with the technical aspects of dental laboratory work.

Dental laboratory technicians perform technical work in the fabrication of dental prosthetic appliances. This work requires a knowledge of oral anatomy, tooth morphology, dentition, laboratory materials and equipment, and the technical principles involved in the design and construction of various types of dental and oral prosthesis.

EXPERIENCE AND TRAINING

For grade GS-1, no written test, experience, training, or education is required. Candidates must be willing to perform simple dental laboratory aid work and show evidence of likelihood of success on the job.

Except for the substitutions provided for below, candidates must have had qualifying experience of the type and amounts shown in the following table:

Minimum Years of Experience Required

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-1	0	0	0
GS-2	½	0	½
GS-3	1	0	1
GS-4	1½	½	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5
GS-8 and above	2	4	6

[1] This standard supersedes the standard for this series that was issued in March 1969.

[2] This standard has been approved by the Administrator of Veterans Affairs for use within the Department of Medicine and Surgery of the Veterans Administration under the provision of Section 4105, title 38, U.S.C.

General experience.—This is experience in which the candidate has demonstrated mechanical skill, artistic ability, or manual dexterity and an interest in and the ability to learn dental laboratory work. This experience may have been gained in a variety of assignments such as:

—aid or helper in a dental, medical, biological, or physical sciences laboratory, or as a nursing or dental assistant.

—manufacturer or repairer of jewelry or similar items, or

—watch, clock, or precision instrument maker or repairer.

Specialized experience.—This is technical experience in a dental or other laboratory in which the candidate has demonstrated, one or more of the following:

—Knowledge and skill in the use of dental laboratory materials such as impression materials, plasters, stones, hydrocolloids, waxes, metals (chrome cobalt and gold), acrylics, porcelain, and similar materials.

—Knowledge and skill in the use of dental laboratory equipment such as hand tools; dental lathes, engines, and hand pieces; furnaces, casting machines, presses, flasks, and related equipment.

—Ability to use such precision instruments as articulators, surveyors, and microanalyzers.

—Knowledge of oral anatomy, tooth morphology, dentition, and related anatomical structures.

—Ability to understand, interpret, and follow the dentist's prescription.

—Ability to work to very exacting specifications and extremely close tolerances in constructing dental prosthetic appliances.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

QUALITY AND LEVEL OF EXPERIENCE

For any grade, the required amount of experience and education will not of itself be accepted as proof of qualification for a position. The candidate's total record of experience and education must show that he has the ability to perform the duties of the position to be filled.

For eligibility at grade GS-4, candidates must have had at least 6 months of specialized experience comparable in difficulty and responsibility to the GS-3 level in the Federal service.

For eligibility at grade GS-5, candidates must have had at least 1 year of experience comparable in difficulty and responsibility to the GS-4 level in the Federal service, of which at least 6 months must have been specialized experience.

For eligibility at grades GS-6 and above, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service.

SUBSTITUTION OF EDUCATION AND TRAINING FOR EXPERIENCE

1. Graduation from a high school or its equivalent may be substituted in full for the experience requirements at the GS-2 level. (High school education or its equivalent may not be substituted for any part of the experience requirements for GS-3 and above.)
2. The successful completion of a full 2-year program (18 months) of study and training in dental technology in a school for dental laboratory technicians approved by the Council of Dental Education of the American Dental Association meets the requirements for grade GS-4.
3. The successful completion of the first full year of the 2-year program (9 months) meets the requirements for grade GS-3.
4. The successful completion of an approved apprenticeship program that consists of at least 2000 hours a year, may be substituted for experience on a year-for-year basis. Completion of a full four-year program qualifies in full for grade GS-6. This apprenticeship may not be added to pre-apprenticeship education or training to meet the requirements for any grade above grade GS-6.
5. The successful completion of training courses in dental laboratory work in the Armed Forces or other Federal agency will be allowed appropriate credit for specialized experience on a month-for-month basis.
6. Education or training in dental laboratory work obtained through manpower development programs, "new careers" programs, inservice training programs, or from trade or vocational schools will be granted appropriate credit, depending on the extent of the training and its relevance to the work of the positions to be filled.
7. Licensed professional dentists will be considered qualified for any grade if they have, in the aggregate, the required experience in dental laboratory procedures.

Except as provided in items 3 and 4 above, partially completed courses of study or training programs may not be substituted for either general or specialized experience.

Except as provided in item 4 above, the maximum amount of experience for which education or training of any kind may be substituted is 3 years (2 years of general and 1 year of specialized experience).

WRITTEN TEST

Candidates for positions at grades GS-2 and GS-3 must pass a written test of abilities necessary to learn and perform the duties of these positions. The written test should be waived for candidates who qualify at GS-3 based on the successful completion of specialized education or training.

A written test is not required for grades GS-4 and above.

BASIS OF RATING

Applicants for all positions will be rated on a scale of 100. The basis of rating will be as follows:

For grade:	
GS-1	An evaluation of the applicant's willingness to do simple, repetitive dental laboratory aid work; dependability; and ability to work safely.
GS-2	Written test score.
GS-3	Written test score, or an evaluation of the experience and training offered by the candidate.
GS-4 and above	An evaluation of experience, education, and training in relation to the duties of the position. Ratings will be based on the applicant's statements in the application and on additional information obtained through qualification inquiries.

INTERVIEW REQUIREMENTS

Candidates may, at the option of the employing agency, be required to appear for a preemployment interview. The purpose of the interview is to observe and evaluate personal qualities such as tact, patience, and emotional stability which are essential to effective performance in dental laboratory technician positions that involve patient contact work.

SELECTIVE PLACEMENT

For some positions, dental laboratory technicians may be required to be familiar with specialized techniques such as ceramic work or the construction of maxillofacial prosthetic appliances. For such positions consideration may be limited to those who have had experience in the appropriate work at a qualifying level of difficulty.

INSERVICE PLACEMENT ACTIONS

Written test

For inservice placement actions, the test is *not* required and, therefore, may *not* be used on a pass-fail basis. In addition, the test may *not* be used in evaluating or ranking eligible employees unless the test is approved for this purpose by the Civil Service Commission. (See section A-3, appendix A, FPM Supplement 335-1.)

Credit for high school education

For inservice placement actions, candidates need show only that they have acquired the additional qualifications required for the new position; that is the difference between the qualifications required for the position they hold and the position for which they are being considered. Thus, a high school graduate appointed at GS-2 needs 6 months of additional experience to meet the minimum requirements for a grade GS-3 position.

Waiver of specialized experience requirements for positions at grade GS-4

For inservice placement actions only, the specialized experience requirements for positions at grade GS-4 may be waived for the reassignment of employees in related occupations such as dental assistant or dental hygenist, provided:

1. The candidate has experience which provided a knowledge of oral anatomy and dentition or other aspects of dental laboratory work,
2. The candidate's past experience and performance indicates possession of the necessary skills and abilities and evidences potential for the successful performance of the work, *and*
3. The candidate will be entered into a planned training program in dental laboratory technician work.

GUIDE FOR EVALUATION OF CANDIDATES

The evaluation of education and training requires particular care. It should take into account the total background of experience and training offered by the candidate as it relates to the specific requirements of the position to be filled.

Dental laboratory technician experience gained as a member of the armed services or in private employment, is acceptable as specialized experience on a month-for-month basis. Such

experience, however, requires careful evaluation to determine the quality level at which it should be credited. Experience preceded by the successful completion of one or more advanced courses in dental laboratory procedures and techniques is likely to be of a higher quality level than work experience following basic training in dental laboratory work.

The evaluation of special training involves careful consideration of its relatedness to the requirements of the position to be filled; the intensity of the training; and the reliability of the sponsorship of the training. To illustrate: Some manufacturers of dental laboratory supplies and equipment offer intensive training in the use of their products. Such training may make a valuable contribution to the knowledge and skill of a dental laboratory technician. When this is so, it should be given appropriate credit.

Some special training programs such as "New Careers" programs, provide a combination of formal classroom training and practical experience. The substance of this training and experience requires careful appraisal to determine (1) its relationship to the requirements of the position to be filled, and (2) the grade level for which it is qualifying.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 5. In addition, applicants must be able to distinguish shades of colors and must possess emotional and mental stability.

Sanitarian GS-5/15

Positions requiring the application of knowledge of a specialized area of environmental health work which is specifically classifiable in any other series are not covered by this standard (e.g., Industrial Hygientist, Health Physicist).

DESCRIPTION OF WORK

Sanitarians plan and administer programs designed to identify, prevent, and eliminate environmental health hazards. These programs include milk and food, water supply, waste, insect and rodent, and other areas. They develop standards and other guidelines for sanitation, and enforce regulations for food processing and serving, collection and disposal of waste, sewage treatment and disposal, plumbing, vector control, recreational areas, sanitation in hospitals and other health facilities. They evaluate the operation of facilities, projects, and programs and advise officials on the use of methods and techniques in resolving environmental health problems. They advise and assist community leaders, agency representatives, and others in improving and obtaining water supply extension, improved sewage disposal, safer recreational areas, more hygienic conditions in nursing and convalescent homes, etc.

BASIC REQUIREMENTS

For grade GS-5

As a basic requirement, applicants must have education or experience as described under A, B, or C below:

A. A full 4-year course of study in an accredited college or university which meets all requirements for a bachelor's degree and which included, or was supplemented by, at least 30 semester hours in a science or any combination of sciences directly related to environmental health (such as sanitary science, public health, chemistry, microbiology, or any appropriate agricultural, biological, or physical science).

B. Four years of successful and pertinent experience in inspectional, investigational, and technical support work, or other responsible work of such nature and level to provide a knowledge and a fundamental understanding of, and the ability to use, environmental health principles, methods, and techniques.

Such knowledge and understanding should be equivalent to those which would have been acquired through successful completion of a full 4-year curriculum in an accredited college or university with major study in appropriate subjects, or combination of subjects, as specified in item "A" above.

C. Any time equivalent combination of experience as described in item "B" with education as described in item "A".

For grades GS-7 and above

In addition to meeting the experience or education requirements for GS-5, applicants for higher grades must have the amount and kind of specialized experience indicated below:

Grade	Years of specialized experience
GS-7	1
GS-9	2
GS-11/15	3

Specialized experience consists of the performance of work in such areas as milk, food, water supply, waste, insect and rodent control, etc. which has demonstrated a proficiency in developing, evaluating and advising on programs designed to prevent and eliminate environmental health hazards.

Examples of assignments in which qualifying specialized experience may have been gained:

A. Experience in inspection and investigation work which has provided a broad background in the analysis of substances to determine contamination or the presence of disease. Such experience must have demonstrated the ability to direct or coordinate environmental health activities, or to solve difficult environmental health problems.

B. Experience in any one or a combination of the agricultural, biological or physical

sciences which has provided the applicant with a knowledge of the concepts, principles, methods, and techniques used to resolve environmental health problems.

C. Experience as an environmental health technician in at least three areas or specialties of environmental health which has demonstrated the ability to analyze, resolve, and advise on environmental health problems. Such duties must have included the collection, tabulation, and evaluation of environmental sanitation data and the development and implementation of plans to eliminate or control environmental health hazards. In addition, technician experience which involved planning, developing, and administering an environmental health program in any one area or specialty may be credited as specialized.

SUBSTITUTION OF EDUCATION FOR SPECIALIZED EXPERIENCE

Full-time* graduate education may be substituted for specialized experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For 1 year of specialized experience.*—One full academic year of graduate education in a science directly related to environmental health. (This amount and kind of education meets all the requirements for grade GS–7.)

b. *For 2 years of specialized experience.*—Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education in a science directly related to environmental health. (This amount and kind of education meets all of the requirements for grade GS–9.)

c. *For 3 years of specialized experience.*—Completion of all requirements for a doctoral degree (Ph. D., or M.D. or equivalent, or 3 full academic years of graduate education in a science directly related to environmental health. (This amount and kind of education meets all the requirements for grade GS–11.)

d. *Alternate requirements.*—Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate advanced experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

LEVEL AND QUALITY OF EXPERIENCE

For grades GS-11 and below, at least 6 months of the required experience must have been at a level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required specialized experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

For any grade, the required amount of experience will not in itself be accepted as proof of qualification for a position. The quality of experience, rather than the length of time employed, will be given primary consideration. The applicant's total education and experience must give positive evidence of ability to perform adequately the duties of the particular position for which he is rated eligible.

When education is combined with experience in order to meet length of experience required for any given grade, the applicant must have had the quality of experience appropriate for that grade.

*Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

SELECTIVE PLACEMENT

Many sanitarian positions demand specific competence in a particular area or specialization. For such positions, consideration and selection may be limited to those candidates whose records show evidence of the required capabilities.

PERSONAL CHARACTERISTICS

An essential requirement for successful performance of this work is ability to meet and deal effectively with people. The work frequently involves contact with representatives of industry, State and local officials, and members of other Federal agencies. Therefore, applicants must possess the ability to exercise good judgment, express themselves clearly and effectively both orally and in writing, and should be tactful and emotionally stable.

BASIS OF RATING

Applicants will be rated on the amount and quality of their experience, education, and training in relation to the requirements of the position. Such ratings will be based on competitors' statements in their applications and upon any additional information which may be secured by the Civil Service Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

GUIDE FOR EVALUATING QUALIFICATIONS

The evaluation of courses in the agricultural, biological, and physical sciences will require careful consideration, as only those that have provided knowledges pertinent to environmental health work should be accepted as qualifying. Courses such as sanitary science, public health, microbiology, chemistry, food science, and entomology are clearly qualifying. Other courses may be qualifying depending upon the course content. For example, courses in agriculture will be acceptable only if they deal primarily with diseases, nutrition, pests or pest control, and spraying techniques for fruits and vegetables.

Acceptable specialized experience includes experience in the actual practice of environmental health or sanitation that was concerned with the sanitary and hygienic quality of food, water, air, shelter, the environs of neighborhood and work places. It should include, but need not be limited to, such functions as planning, developing, administering, coordinating, and investigating projects or programs designed to protect the community from disabilities and to promote its well being.

In evaluating top level administrative and managerial positions, certification as a Diplomate by the American Intersociety Academy for Certification of Sanitarians should be given appropriate weight in assessing the candidate's overall work experience.

Industrial Hygienist GS–5/15

Industrial Hygiene and Safety Manager GS–11/15

DESCRIPTION OF WORK

Industrial Hygiene is a science within the broad field of occupational health which is concerned with the prevention of disease through proper control of the work environment. This involves (1) the recognition of health problems created within the occupational environment, (2) the evaluation of the occupational environment in terms of the long range as well as the short range effects on health, and (3) the development of corrective measures in order to eliminate existing problems. Some of the more frequently encountered causes of these health problems are: chemical agents (liquid, dust, fumes, mist, vapor, or gas); physical energy (electromagnetic and ionizing radiations) as well as noise, vibration, and exceedingly great temperature and pressure extremes; biological agents (in the form of insects, molds, yeasts, fungi, bacteria, and viruses); and ergonomic factors (monotony, repetitive motion, anxiety, and fatigue). These stresses must all be evaluated in terms of their danger to life and health, as well as their influence on the natural bodily functions. Industrial hygienists conduct surveys of worksites to identify and evaluate conditions which may be unhealthful to the worker, using a variety of equipment to take samples from the environment and to collect personal data from workers. Other functions performed by industrial hygienists include developing standards, calibrating and operating highly technical instrumentation, preparing methods and techniques for use by other occupational health and safety personnel, conducting epidemiologic studies to uncover the presence of occupation-related illness, developing and presenting education and training programs for employees and supervisors, reviewing design plans for new facilities and for modifications to existing facilities, investigating new processes and materials for adequacy of health hazard controls, and managing occupational health programs. Industrial hygienists evaluate data collected from the environment, using laboratory analysis and extensive literature searches, and recommend or prescribe measures to control any unhealthful conditions identified. Among the more common control procedures are: a reduction of the number of persons exposed to a problem, the replacement of harmful or toxic material with less dangerous ones, changing of work processes to eliminate or minimize worker exposure, adoption of new ventilation procedures, increasing distance and time between exposures to radiation, introduction of water in order to reduce dust emission, and provision of proper protective attire. The industrial hygienist often works in collaboration with other occupational health personnel, such as physicians, chemists, toxicologists, health physicists, as well as with mechanical engineers, production and design engineers, statisticians, safety engineers, safety specialists, and management and shop supervisors, with the objective of protecting personnel from industrial health hazards.

Industrial Hygiene and Safety Managers apply management and executive abilities to develop and direct a comprehensive occupational health program, usually of sufficient breadth as to require the services of other specialists, such as safety specialists or engineers, health physicists, sanitarians or environmental engineers, chemists, toxicologists, or similarly related occupations. Responsibilities include typical managerial duties, such as planning and directing the work of an organization, accountability for the success of the specific line or staff program(s), monitoring the progress of the organization toward goals, periodically evaluating the program and making appropriate adjustments, planning and managing resources, and coordinating the program among interested internal or external organizations or groups.

BASIC REQUIREMENTS FOR ALL GRADES

Candidates for positions at all levels must meet the basic requirements specified under paragraph A or B below:

A. Successful completion of a full 4-year course of study in an accredited college or university creditable toward a bachelor's or higher degree in industrial hygiene, or in a branch of engineering, physical science or life science. This study must have included, or been supplemented by, 12 semester hours of course work in chemistry which included organic chemistry, as well as 18 additional semester hours of courses in any combination of the following fields: chemistry, physics, engineering, health physics, environmental health, biostatistics, biology, physiology, toxicology, epidemiology or industrial hygiene. Courses in the history or teaching of chemistry are not acceptable.

B. Four years of progressive technical experience and education that provided an understanding of sciences applicable to the fields of industrial hygiene comparable to that which would have been acquired through successful completion of a full 4-year college course as described in paragraph A. This education and/or experience must have included or been supplemented by courses totaling a minimum of 12 semester hours of course work in chemistry which included organic chemistry, plus 18 additional semester hours as specified in paragraph A above.

Qualifying experience may have been obtained in field, laboratory, engineering or other environments if the work provided a means of obtaining a professional knowledge of the theory and application of the principles of industrial hygiene and closely related sciences, such as physics and engineering controls. Such work must have involved experience in all of the following areas: the acquisition of quantitative and qualitative data and the measurement of exposures for a variety of chemical, physical, and biological stresses; the analysis of the data acquired and the prediction of probable effects of exposures on the health and well-being of workers; and the selection and recommendation of appropriate controls, including management, medical, engineering, education or training, and personal protective equipment.

Assignments which provided experience in only one phase of industrial hygiene work, e.g., collecting samples, is too limited to be fully qualifying for this series. (For example, in order to use a U-tube manometer to take pressure measurements in a ventilation system, it is important to understand the basic fluid dynamics occurring within the system. Without such an understanding, the need will not be appreciated for locating the measurements away from any turbulence occurring at elbows, expansions, and intersections. Without an understanding of the principles involved, such turbulence is likely to be overlooked and the resulting measurements taken, though taken using the proper procedures, will be inaccurate.)

All science or engineering courses offered in fulfillment of the above requirements must have been acceptable for credit toward the completion of a standard 4-year professional curriculum leading to a bachelor's degree in science or engineering at any accredited college or university.

GS–5—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience must have been in industrial hygiene, or in a directly related field. Such graduate education must have been in industrial hygiene, or in closely related subjects (see below, Guide for Evaluation of Candidates).

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he or she is being considered. For example, candidates for research positions must

possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. Experience

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. Education

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above provided they are directly related to the work to be performed.

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; or Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); or Three full academic years of graduate education.
GS–11 Research positions	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions	Completion of all requirements for a doctoral (Ph.D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. Combinations of professional experience and graduate education

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

The professional experience must clearly demonstrate that the candidate has the personal qualities and technical competence to solve problems, direct or coordinate projects, or to conduct negotiations and contacts involved in professional work at the level for which eligibility is sought.

Professional experience is defined as experience in nonroutine, nontechnician phases of industrial hygiene. This experience must have demonstrated a mastery of the professional body of knowledge of industrial hygiene, fully developed skills and a professional ability to apply scientific methodology to occupational health problems, and continuing development of knowledge and ability to stay abreast of the state-of-the-art.

4. Alternate requirements

Superior academic achievement at the baccalaureate level or professional student trainee experience may be qualifying at grade GS–7 provided the pertinent criteria in section III of part II, Instructions to Users, of this handbook have been met. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate experience is qualifying at grade GS–9 provided the criteria in section III of part II, Instructions to Users, of this handbook have been met.

SUPERVISORY POSITIONS

For supervisory positions, use the qualification standard for "Supervisory Positions in General Schedule Occupations", in part III of this handbook, in combination with this standard.

SELECTIVE PLACEMENT

Within the broad field of industrial hygiene, specialty areas exist which may require intensive or advanced knowledge of different basic sciences or of engineering technology. For example, industrial hygienists who evaluate chemical industries, or who perform their own laboratory analyses, may require additional training in chemistry, over and above the minimum requirements, in order to understand processes, reactions, nomenclature, and analytical techniques. Similarly, positions responsible for developing or recommending engineering controls to reduce health hazards may require greater skill in applying engineering techniques than positions which do not have this responsibility. Thus, the differences in qualifications required for one specialty area as compared to another need to be considered in selective placement of candidates for positions even though they are not reflected in official class titles. (Specialties recognized by the profession via certification are described below under "Guide for Evaluation of Candidates".)

An interdisciplinary approach may be considered, as appropriate, as in the case where the position is responsible for supervising or performing a substantial amount of technical work in related disciplines, such as chemistry, health physics, or engineering (see the General Introduction, Background, and Instructions to the Position-Classification Standards).

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

BASIS OF RATING

No written examination is required. Candidates will be rated, based on the extent and quality of their education, experience and accomplishments in relation to the requirements of the position. Such ratings will be based upon statements of candidates in their applications, upon qualification inquiries, and upon any additional information that may be secured by the Office of Personnel Management.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for Positions at GS–5 and GS–7

The basic knowledge, skills, and abilities required for professional industrial hygiene work are:

1. Skill in recognizing environmental factors in the workplace which may adversely affect the health of workers and an understanding of their effects on the human body.
   - —Knowledge of industrial work processes, equipment used, raw materials, energy used, intermediates, by-products, waste materials, and final products.
   - —Knowledge of the routes of entry of toxic materials and basic biochemical responses to toxic or harmful chemical, physical and biological agents.
2. Skill in evaluating the magnitude of environmental stresses as related to their effects on workers' health.

—Knowledge and skill in the use of sampling instrumentation for measuring chemical contaminants, noise, radiation, and other health hazards found in the workplace.
—Knowledge of sampling techniques and strategies.
—Knowledge of basic mathematics and statistical concepts for the purpose of evaluating measurements.
—Ability to interpret and apply recommended exposure limits, guidelines of accepted practice, standards, regulations, and legislation.

3. Skill in evaluating and prescribing methods for the control or elimination of occupational health hazards.
—Knowledge of basic industrial hygiene control methods, including engineering controls and basic elements of design, substitution of materials, changes in processes, isolation or enclosure of processes, wet methods, local exhaust, general ventilation, good housekeeping, and personal protective devices.

4. Skill in communications.
—Ability to communicate orally and effectively with all levels of management and workers.
—Knowledge of technical report writing.
—Knowledge of education and training practices.
—Knowledge of radiation control, including the principles of shielding.
—Knowledge of noise control, including isolation, attenuation, refraction, reflection, absorption and properties of materials to reduce transmission of vibration.

Because potential health hazards in the work environment may result from chemical, physical, or biological agents, or from a combination of these, industrial hygienists need a broad background in the physical sciences, as well as a limited knowledge of engineering principles and practices to understand industrial work processes, the hazards associated with them, and measures needed to control them. Industrial hygienists must acquire a knowledge of physiology and toxicology, and of a wide variety of diseases in order to evaluate the harmful effects of these hazards on employees and to provide advice to the medical officers in such matters as the causes of occupational diseases. Industrial hygienists should also know the standards, regulations, and legislation applicable to the occupational health and safety field. They must be skillful in obtaining the cooperation and acceptance of industrial hygiene principles and practices by management, supervisors, workers, unions, and other personnel in the occupational health and safety field. Finally, industrial hygienists must keep abreast of this rapidly advancing discipline through continuing education, training, study of current professional literature, and maintaining professional contacts with other industrial hygienists.

Evaluation of candidates for GS-5/7 grade levels is based largely on their academic career, with consideration also being given to any employment experience they may have had. When evaluating a candidate's academic record, consideration should be given to the extent to which the courses successfully completed contribute to the basic knowledge of industrial hygiene and related fields. Extra credit may be given for excess courses in chemistry, engineering, physics, or in closely related disciplines.

Examples of courses which are applicable to work in industrial hygiene are the following:
—Biological sciences: Zoology, Microbiology, Physiology, Parmacology, Toxicology, Immunology, Epidemiology, Biology.
—Engineering sciences: Fluid Dynamics, Thermodynamics, Strength of Materials, Statistics, Dynamics, Waste Treatment, Structures, Hydraulics, Electrical Circuits, Servo-Mechanics, Power Systems, Unit Operations.
—Industrial engineering: Operations Research, Plant Layout, Quality Control, Time and Motion Studies, Production Methods, Ergonomics, Computer Science.
—Industrial hygiene: Acoustics and Noise Control, Ventilation—Local and General, Instrumentation, Aerosol Technology,

Health Hazard Recognition, Respiratory Protection, Health Hazard.

—Mathematical sciences: Algebra, Trigonometry, Analytical Geometry, Calculus, Differential Equations, Statistics, Evaluation.

—Physical sciences: Physics, Sound and Wave Motion, Light, Electricity and Electron Physics, Mechanics, Nuclear Physics, Heat, Meteorology, Mineralogy, Inorganic Chemistry, Organic Chemistry, Biochemistry, Physical Chemistry, Analytical Chemistry, Quantitative Analysis, Qualitative Analysis.

In addition to the sciences and engineering, a basic knowledge of written and oral communications and of management theories and principles is useful in the practice of industrial hygiene. Examples, of courses which may be considered in the evaluation of candidates are the following:

—Liberal arts: Composition and Rhetoric, Technical Writing, Public Speaking, Teaching/Training, Communications.

—Management sciences: Management, Finance, Accounting, Economics, Marketing, Law, Insurance, Labor Relations.

Because of variations in course titles and in the college departments in which the courses are offered, a brief description of the course may have to be supplied by the applicant for evaluation.

Candidates for positions at GS–9 and above

For positions at these levels, evaluation of undergraduate college training is less important than the consideration of graduate education and professional work experience. The same factors that are used to evaluate the undergraduate academic record may also be used to evaluate the graduate record.

It may be desirable to have the professional industrial hygiene, or closely related, experience evaluated by panels of industrial hygienists of high standing in their field who have had some training in examining qualifications and appraising the significance of experience and achievement.

The evaluation of a candidate's work experience should consider its nature and significance, its relationship to the requirements of the position, and whether it has involved the performance of professional work of increasing difficulty and complexity, and the assumption of more responsibility.

Candidates may be evaluated for active membership in and presentations before professional organizations, for participation in seminars and study groups, for technical publications, patents, awards, or similar achievements. Technical publications should be evaluated for their contribution to advancing knowledge in industrial hygiene, rather than on their quantity alone.

Candidates for positions at GS–9 and above should also be evaluated for ability to plan work, skill in interpersonal relationships, ability to write clear and accurate technical reports, ability to manage a project or a program, or similar skills.

For positions of Industrial Hygiene and Safety Managers the evaluation of managerial experience should take into account the scope of the industrial hygiene and/or related functions or programs for which the candidate has been responsible and the relationship of this experience to the position to be filled.

Certification by the American Board of Industrial Hygiene (ABIH) may be considered in evaluating the level of competence of the candidate. Full-professional certification generally requires completion of an appropriate baccalaureate program, a minimum of 5 years of professional practice, and successful completion of the appropriate examination offered by the Board. Some of the general and specialized areas of industrial hygiene for which certification may be obtained are the following:

1. Industrial Hygienist-In Training—This type of certification may be obtained after one year of full-time practice in industrial hygiene under the close supervision of an industrial hygienist, and a knowledge of the basic principles of industrial hygiene as demonstrated by successful completion of the core examination of-

fered by the Board. (This certification may also be appropriate for ranking purposes at the GS-7 entry level.)

2. Comprehensive Practice which examines for:

a. knowledge of potentially hazardous agents in the working environment (chemical, biological, particulate, electromagnetic radiations, acoustical, ergonomic factors, and similar matters);

b. knowledge required in the evaluation of the working environment, including analytical chemistry, biochemical indices of exposure, PVT (pressure, volume, and temperature) calculations, and statistical methods;

c. knowledge of hygienic standards, TLV's and potential injurious effects on workers, nuisances and property damage, U.S. Federal acts and regualtions relating to occupational health;

d. knowledge of industrial operations which may result in exposure to toxic or physical agents, atmospheric pollution, meteorology, waste disposal, water pollution, and consumer hazards;

e. knowledge of occupational health hazard controls, epidemiology, ventilation, specific methods for particular agents, basic principles, legal factors, history, education, and literature.

3. Chemical Aspects which examines for such in-depth knowledge as chemical reactions, analytical procedures, and monitoring methods used for determining the nature and magnitude of health hazards.

4. Toxicological Aspects which covers facts and experimental methods in toxicology, biochemistry, physiology, pathology, and allied medical sciences.

5. Air Pollution Aspects which examines for knowledge of pertinent toxicology, chemistry, and engineering facets of air pollution.

6. Engineering Aspects which covers such subjects as ventilation, air sampling, physical factors in the environment, personal protective equipment, and engineering control methods.

7. Acoustical Aspects which requires, as demonstration of competency in this specialty, full membership in the Institute of Noise Control Engineering and passing of the ABIH core examination.

8. Radiological Aspects which requires certification by the American Board of Health Physics.

9. The American Board of Industrial Hygiene provides the opportunity to obtain certification to those individuals who do not hold a college degree but who have demonstrated competence in the practice of industrial hygiene which was gained through appropriate experience and other methods. Such certification by the ABIH is a method by which candidates, applying for entry into the occupation under Paragraph B of the Basic Requirements For All Positions, may demonstrate full professional competence.

PHYSICAL REQUIREMENTS

Most positions involve moderate physical exertion, including carrying equipment, standing, walking, bending, and climbing stairs and ladders to moderate heights. Occasional work in confined spaces may also be required. Industrial hygienists must be able to operate sampling equipment, adjust dials and controls, and read fine scales, meters, and gauges in order to obtain accurate measurements and representative samples. The industrial hygienist works in an environment involving periodic exposure to a variety of unpleasant and potentially hazardous conditions, including high noise levels, toxic chemicals, temperature extremes, extended periods of walking and standing, and carrying a considerable amount of equipment. Protective clothing and equipment is required in some situations. The industrial hygienist must be physically capable of working safely with sampling equipment in performing the functions described above, while wearing protective clothing and equipment, especially respiratory equipment, and while working under these unpleasant and potentially hazardous conditions.

Applicants must be physically and mentally able to efficiently perform the essential functions of the positions without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

ENVIRONMENTAL HEALTH TECHNICIAN SERIES

Environmental Health Aid GS-1/3
Environmental Health Technician GS-4/12

DESCRIPTION OF WORK

Employees in this occupation are assigned a wide variety of support tasks designed to facilitate the identification, prevention, or elimination of environmental health hazards in one or more areas of environmental sanitation.

Environmental health aids primarily collect and record adequate data on existing environmental sanitation conditions and initiate corrective action on the health hazards that are fully covered by written guidelines.

Environmental health technicians (1) conduct surveys and implement measures to control the spread of diseases and other health hazards or conditions; (2) take samples of such materials as water, food, and air, and perform or assist in performing tests to determine contamination; (3) explain how to repair, install, or construct sanitation facilities; (4) investigate public and private establishments to determine compliance with or violation of public sanitation laws and regulations; and the like.

EXPERIENCE, EDUCATION, AND TRAINING REQUIREMENTS

Grade GS-1

For grade GS-1, no experience, training, or education is required. Neither is there a requirement to pass a written test. The only requirement is that the applicant be willing to perform sanitation work and that there be evidence of likelihood of success in environmental sanitation assignments.

Experience requirements

Except for the substitutions provided for below, candidates must have had qualifying experience in the amounts and type shown in the following table:

Grade level	General experience (years)	Specialized experience (years)	Total experience (years)
GS-1	0	0	0
GS-2	½	0	½
GS-3	1	0	1
GS-4	1½	½	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5
GS-8	2	4	6

General experience.—This is any type of work which indicates evidence of the applicant's aptitude for acquiring the particular knowledges and skills needed to perform environmental sanitation work.

Examples of positions which may indicate evidence of such aptitude are: Restaurant worker, dairy farm or pasteurization plant employee, medical assistant, physical science aid, laboratory technician, mathematics aid, engineering aid, commercial pest control employee, well driller, maintenance and custodial worker and salesman of chemical and pharmaceutical products.

Because military experience is typically geared toward performing assignments in accordance with specific rules, regulations, and detailed procedures, it may be accepted as general experience.

Specialized experience.—This is experience which involved identifying, preventing, or eliminating environmental health hazards in one or more areas of environmental sanitation. Such experience must have provided the applicant with a practical knowledge of environmental health hazards, survey techniques, and control and eradication methods.

Examples of occupations which may provide specialized experience are: biological technician, medical technician, pest control technician, quality control position with dairy or food service industries, and environmental health worker in local or State government or in industry. Journeyman experience in a trade or craft may

be credited as specialized experience when the work is closely associated with and provides the required knowledge of environmental health techniques, methods, and skills (e.g., pest control operator, waterplant operator).

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

QUALITY AND LEVEL OF EXPERIENCE

For positions at any grade the amount of experience will not in itself be accepted as proof of qualification. The applicant's record of experience and training must show that he has the ability to perform the duties of the position. In addition:

For grade GS–4, applicants must have had at least 6 months of specialized experience comparable in difficulty and responsibility to the GS–3 level.

For grade GS–5, applicants must have had at least 1 year of specialized experience of which at least 6 months must have been comparable in difficulty and responsibility to the GS–4 level.

For grades GS–6 through GS–11, at least 1 year of the specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service.

For grade GS–12, at least 1 year of the specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

GS–2: Graduation from a high school may be substituted in full for the experience requirements at the GS–2 level.

GS–3: Successful completion of 1 year of study in a school above the high school level may be substituted for 1 year of experience, and meets in full the experience requirements at the GS–3 level.

GS–4: Successful completion of 2 years of study in a school above the high school level which included at least 12 semester hours in any combination of courses in health, agricultural, biological, or physical sciences meets in full the experience requirements at the GS–4 level (1½ general and one-half specialized).

GS–5: Successful completion of all the requirements for the bachelor's degree with major study in the health, physical, or biological sciences may be substituted for 3 years of experience including the 1 year of specialized experience, and meets in full the experience requirements at the GS–5 level.

Appropriate education and training other than that outlined above, such as in military training programs or manpower development programs, will be given credit, depending upon its applicability and extent.

The maximum amount of experience for which education of any kind may be substituted is 3 years.

WRITTEN TESTS

No written test is required for competitive appointment to positions at any grade. Written tests should not be used for inservice placement actions.

BASIS OF RATING

Applicants for all positions will be rated on a scale of 100. The basis of rating will be:

For GS–1: An evaluation of the applicant's willingness to do simple and repetitive environmental health work; his dependability; and his ability to work safely.

For grades GS–2 and above: An evaluation of experience, education, and training. The applicant must present evidence of ability to perform the duties typical of the grade level for which he is being considered. The

information for evaluating experience and training will be taken from the application form and any additional information obtained through confidential inquiries to supervisors, teachers, and other references. In evaluating the applicant's experience and training background, consideration should be given to the degree and extent to which the evidence shows that he has acquired the skills and abilities to perform the work of the position to be filled, e.g.:

—Collect, analyze, or test data on water supply, waste disposal, food storage, housing, etc.;

—Inspect and advise on the proper installation or construction of sewage disposal systems, water systems, plumbing systems, etc.;

—Evaluate and advise on refuse collection or disposal practices;

—Inspect, develop, or advise on insect and rodent control programs;

—Inspect and advise on operational and equipment deficiencies of food handling facilities;

—Explain, both orally and in writing, sanitation needs, requirements regarding the installation or construction of sanitation facilities, and the maintenance and use of such facilities; or

—Identify sanitation factors that relate to transmission of preventable diseases.

In ranking individuals, information about the demands of the job in terms of specific environmental health areas should be considered. For example, an applicant who shows successful experience in inspecting, testing, and treating the water supply might not possess the required knowledges and skills for inspecting, testing, and explaining food processing, preparation, and serving techniques, or vice versa. Therefore, when the position requires knowledges and skills of a particular environmental health area, successful experience gained in that area should be ranked as highest quality experience. Similarly, academic study in a science or technology directly related to the position to be filled should be ranked as highest quality education.

Intensive training in a manpower development program, "New Careers" program, or inservice training designed specifically to train candidates for sanitation work should be ranked as highest quality training. For grades GS–5 and below, such specifically tailored training is also substitutable on the basis of 1 month of training for 2 months of experience for a maximum of 1 year of specialized experience.

RELATING QUALIFICATIONS OF CANDIDATES TO JOBS HAVING SPECIAL REQUIREMENTS

All environmental health technician jobs require a practical knowledge of basic environmental health concepts, principles, methods, and techniques—including survey and inspection techniques and control and eradication methods. However, the duties of these positions vary with the specific field of environmental sanitation. Consequently, the particular demands of positions may vary widely. Consideration and selection of candidates for such positions may be limited to those whose records show evidence of the required capabilities.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3.—In addition, applicants must possess emotional and mental stability.

GUIDES FOR INSERVICE PLACEMENT ACTIONS

The standard for inservice placement actions is basically the same as for entry into the Federal service, with the exception of the following:

For reassignments from other occupations to environmental health aid and technician positions, the requirements for specialized experience may be waived: (*a*) when a formal training plan exists to train candidates in environmental health work, and (*b*) candidates are selected based on evidence that they have the aptitude for acquiring the particular knowledges and skills needed to perform environmental sanitation work.

HEALTH AID AND TECHNICIAN SERIES[1,2]

For Positions in the Health Aid and Technician Occupation GS-699-1/9

DESCRIPTION OF WORK

Health Aids and Health Technicians provide technical support and assistance to professional medical and health personnel when the work is properly classifiable in the Medical, Dental, and Public Health Group, GS-600, but there is no other more appropriate nonprofessional GS-600 series. The positions range widely in type and include support duties to medical or health personnel such as the audiologist, speech pathologist, medical officer (orthopedic surgeon, ophthalmologist, etc.), or optometrist.

The duties of these positions vary with the specific type of assignment and with the grade of the position.

EXPERIENCE, TRAINING AND RELATED REQUIREMENTS

Grade GS-1

For grade GS-1, no experience, training, or education is required. No written test is required. Applicants must be interested in and willing to perform health aid work and show evidence of likelihood of success in these assignments.

Experience requirements

Except for the substitutions provided for below, candidates must have had qualifying experience in the amounts shown in the following table:

Minimum Years of Experience Required

Grade	Total experience (years)	General experience (years)	Specialized experience (years)
GS-1	0	0	0
GS-2	½	½	0
GS-3	1	1	0
GS-4	2	1½	½
GS-5	3	2	1
GS-6	4	2	2
GS-7	5	2	3
GS-8 and above	6	2	4

[1] The standard for this series supersedes the standard for the GS-666, Speech Technician and Hearing Technician Series, which was issued in April 1961.

[2] This standard has been approved by the Administrator of Veterans' Affairs for use within the Veterans' Administration under the provisions of Section 4105, Title 38, U.S.C.

General experience

This is experience which has provided some familiarity with medical or dental care; a basic knowledge of procedures and equipment of biological, chemical, or medical laboratories; *or* some knowledge of mechanical, electric, or electronic equipment. Such experience may have been gained in any one or any combination of types of experience such as the following:

a. Practical nurse, nurse's aide, nursing assistant, surgical or operating room technician, or dental assistant.
b. Medical technician, laboratory technician, laboratory assistant or similar types of positions in a medical, clinical, college or industrial laboratory.
c. Physical science laboratory aid.
d. Electrician, radar operator, electronics technician or X-ray technician in an industrial capacity.

Specialized experience

This is technician experience which required application of the knowledges, methods, and techniques for the position to be filled. Excess specialized experience may be applied toward the general experience requirements.

Supervisory positions

For supervisory positions, see the qualification standards for "Supervisors of Work Classifiable at One-Grade Intervals", in part III of this handbook.

QUALITY AND LEVEL OF EXPERIENCE

For eligibility *at grade GS-4*, candidates must have had at least 6 months of specialized experience comparable in difficulty and responsibility to the GS-3 level in the Federal service.

For eligibility *at grade GS-5*, candidates must have had at least 1 year of experience comparable in difficulty and responsibility to the GS-4 level in the Federal service, of which at least 6 months must have been specialized experience.

For eligibility *at grades GS-6 and above*, at least 1 year of the required specialized experience must have been comparable in difficulty and

responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's total record of experience and education must show that he has the ability to perform the duties of the position to be filled.

SUBSTITUTION OF EDUCATION AND TRAINING FOR EXPERIENCE

Successfully completed education and training of acceptable type and quality may be substituted for the experience requirements, as specified below:

GS-2: Successful completion of a full 4-year or senior high school curriculum *or* General Educational Development (GED) high school equivalency certificate may be substituted in full for the experience requirements for grade GS-2. High school education *or* GED high school equivalency certificate may not be substituted for any part of the experience requirements at GS-3 and above.

GS-3: Successful completion of 1 academic year of post high school study in a resident school or institution in medical, health, or related fields or in an accredited college, junior college or university that included courses in health, medical, or scientific subjects or fields may be substituted in full for the experience requirements for GS-3.

GS-4: Successful completion of 2 academic years of study as described for GS-3 above which included study in subjects or fields closely related to the position, may be substituted in full for the 2 years of experience required at the GS-4 level (1½ years general and ½ year specialized).

GS-5: Successful completion of all the requirements for the bachelor's degree, with study in subjects or fields closely related to the position may be substituted for 3 years of experience, including 1 year of specialized experience, and fully meets the experience requirements at the GS-5 level.

Education and training other than that outlined above, such as in military training programs or manpower development programs, will be granted appropriate credit dependent upon its applicability and extent. At any grade, post high school education may be partially substituted for required experience at the rates of substitution indicated above.

The maximum amount of experience for which education of any kind may be substituted is 3 years.

WRITTEN TEST

Candidates for positions at GS-2 and GS-3 must pass the written test of abilities necessary to learn and perform the duties of these positions. The written test should be waived for all in-service placement actions but not for appointments outside of the register.

BASIS OF RATING

Competitors for all positions will be rated on the quality and extent of experience, education, or training in relationship to the duties of the positions. Ranking will be made on the following basis:

For GS-1:	An evaluation of the applicant's willingness to do simple and repetitive health aid work; his dependability; and his ability to work safely.
For GS-2 and GS-3:	Written test scores.
For GS-4 and above:	An evaluation of experience, education and training in relationship to the duties of the position.

The information for evaluating experience, education, and training will be taken from the application form and any additional information which may be obtained through reference inquiries to supervisors, teachers, and others.

IN-SERVICE PLACEMENT ACTIONS

Written test

Where required in the standard for competitive actions, the written test should be waived in in-service placement actions, but not for appointments outside the register.

Credit for high school education

In in-service placement actions, successfully completed high school education may be credited in accordance with the "add-on" rule, section 3–1(b), FPM chapter 337.

Waiving directly applicable specialized experience requirement at GS–4 and GS–5

For in-service placement actions only, the requirement for directly applicable specialized experience at grades GS–4 and GS–5 may be waived for lateral reassignment or promotion of nursing assistants, medical technicians, biological laboratory assistants, etc. provided:

1. The candidate has had experience which has provided a general familiarity with the work of the position for which he is being considered, and,
2. A review of the candidate's experience and performance indicates that he possesses the necessary skills and abilities, and evidences definite potential for successful performance of the work.

SELECTIVE PLACEMENT

Some positions may require particular knowledges and skills. In such instances consideration may be limited to those candidates whose records show that they have the required knowledges and skills.

SPECIAL REQUIREMENTS FOR POSITIONS INVOLVING PERSON-TO-PERSON WORK RELATIONSHIPS WITH PATIENTS

Some Health Aid and Technician positions involve substantial contact with patients to gain their cooperation in the examination or therapeutic procedures, to set them at ease, and to explain the procedures as necessary. Duties performed require tact, courtesy, and capacity for person-to-person work relationships. In filling such positions, appointing offices should assure themselves by reference checks, personal interviews, or other appropriate means, that applicants possess the qualities to the degree necessary for satisfactory performance of the duties of the positions.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 5. In addition, some positions may require the ability to distinguish either basic or shades of colors, and applicants must possess emotional and mental stability.

GUIDE FOR EVALUATION OF CANDIDATES IN RELATION TO JOB REQUIREMENTS

Evaluation of education or training

The nature and quality of basic education or training are of most value in evaluating candidates at the lower levels. Education is typically of less significance at GS–6 and above as compared with experience. The following aspects should be considered in evaluating education:

1. *The extent of preparation in the specializations in which the work is involved*

   Courses in science vary greatly from college to junior college to specialized training schools for medical or health technicians in number, variety, scope, and quality. Distinctions in quality can be made, over and above the courses meeting the basic requirements, on the extent to which the nature and scope of courses provide the kind of specialized knowledge required for the position.

2. *Academic achievements*

   Consideration may be given to achievement in science courses, in technical schools, and in laboratory practice, the candidate's general standing in his class, and other academic achievements. These are of most use where other measures (e.g., evaluation of work experience) are not available.

Evaluation of experience

Evaluations of experience for either competitive or in-service placement actions can best be made by professional personnel and/or high level technicians, who have had training in evaluating qualifications and appraising the significance of technical achievement.

For technician positions the evaluation of experience logically includes appraisal of personal attributes and characteristics as demonstrated in performance on the job. This includes the degree and scope of the applicant's technical knowledge, skills, and abilities which can be brought to bear upon duties in the position to be filled.

The following may be considered in the evaluation of experience:

1. *Nature and level of experience*
   Experience which did not involve up-to-date techniques, procedures, and equipment or which did not demonstrate steady progression should be considered to have less value than experience which did.
2. *Nature of collateral experience*
   Collateral experience, including valuable technical experience in excess of requirements, and experience in related occupations (such as nursing assistant, medical technician, biological laboratory technician, physical science technician, and the like) may be given appropriate additional weight.
3. *Personal attributes, abilities, and characteristics*
   Following are some of the more desirable abilities and personal characteristics for candidates for health aid and technician positions:

   a. Knowledge of specific scientific techniques and procedures involved in the given work situation;
   b. Attention to details;
   c. Dexterity;
   d. Reasoning ability;
   e. Organizing ability in performing examinations or treatments in an orderly and systematic fashion;
   f. Accuracy of work in performing examinations or treatments and in reading and reporting findings;
   g. Ability to get along with professional and paramedical personnel in the hospital or clinic;
   h. Sensitivity to patients and their needs;
   i. Ability to gain cooperation of the patients.

Information in addition to that provided in application form is needed for proper evaluation of qualifications for many health aid and technician positions. This includes evaluations by supervisors, teachers, and others in a position to provide information on accomplishments and personal characteristics, as well as the quality of performance on the job.

Supplemental applications may be used as necessary to obtain from the candidate the necessary information regarding college study, specialized training in the military services, or in specialized health or medical technician schools.

Veterinary Medical Officer GS-9/15

DESCRIPTION OF WORK

Veterinary medical officers apply professional competence in the veterinary medical arts and sciences in programs that are established to protect and improve the health, products, and environment of or for the Nation's livestock, poultry, or other species for the benefit of human, as well as animal, well-being. They apply current, advanced, or specialized veterinary medical principles and practices of gross and microscopic anatomy; general, special, and post mortem pathology; microbiology and immunology; pharmacology and therapeutics; comparative physiology; toxicology; epidemiology; surgery; medicine; hygiene; reproduction; or other specialties of the profession to a variety of programs. They investigate, inspect, and deal with problems such as animal diseases, animal pollution, contamination of food of animal origin, health and safety of imported animals and animal products, safety and efficacy of many animal, as well as human, drugs and biological products, and cooperative enforcement activities involving both the public and private sectors.

MINIMUM EDUCATION REQUIREMENTS

Candidates must show successful completion of a full course of study leading to a degree of Doctor of Veterinary Medicine or equivalent at an accredited or approved* veterinary medical school. These requirements also may be satisfied when candidates submit positive evidence of possession of equivalent qualification through recognition, certification, or approval by one of the following qualifying organizations in the United States:

—A department of higher education of one of the fifty States.

—An accredited or approved veterinary medical school (i.e., by acceptance of completed D.V.M. or equivalent degree work for advanced degree work).

—A Board of Veterinary Medical Examiners of one of the fifty States.

Graduates of foreign veterinary medical schools who do not meet the requirements specified above must furnish proof of (a) graduation from a veterinary medical school, (b) comprehension and ability to communicate in the English language, and (c) having passed the written examination in veterinary medicine of the Educational Commission for Foreign Veterinary Graduates or the U.S. National Board of Veterinary Medical Examiners. Proof of English language proficiency may be met by (1) achieving a total score on the Test of English as a Foreign Language of at least 550 with a listening comprehension score of at least 60 points, (2) earning an advanced degree (i.e., an MS or Ph.D) at a U.S. college or university, *or* (3) graduating from a U.S. or Canadian English-speaking high school. Exceptions to these requirements are as follows:

—Certificates held by veterinarians who qualified between 1965 and 1972, under the program of the Educational Commission for Foreign Veterinary Graduates will be honored.

—Veterinarians who are graduates of foreign veterinary colleges which were included on the September 1, 1963 list entitled, "Foreign Veterinary Colleges Evaluated by the Council on Education, American Veterinary Medical Association," and who entered the United States or Canada and qualified as eligible for private practice or Federal employment on or before December 31, 1972, will be accepted.

EXPERIENCE REQUIREMENTS

In addition to the minimum education requirements described above, the experience specified below is required for eligibility at the indicated grade:

GS-9: No experience required.

*For purposes of this standard, an approved veterinary medical school is a college of veterinary medicine outside the United States and Canada which has been granted *approval status* by the American Veterinary Medical Association.

GS-11: 1 year of progressively responsible, professional veterinary experience is required, e.g., shows demonstrated ability to perform independently veterinary medical duties or shows demonstrated aptitude or ability to perform research. GS-5 and GS-7 predoctoral student trainee experience may be credited up to a maximum of 6 months towards the 1 year experience requirement.

GS-12: 2 years of progressively responsible, professional veterinary experience are required, e.g., shows a thorough knowledge of the field of veterinary medicine applicable to the position for which the candidate is being considered, demonstrated ability to perform difficult professional work requiring judgment and initiative, and demonstrated skill in developing and maintaining effective working relations with individuals and groups; or shows demonstrated ability to perform research in the appropriate medical field.

For GS-13, 14, and 15: 3 years of progressively responsible, professional veterinary experience are required, e.g., shows demonstrated ability to perform, plan, or manage complex veterinary medical work applicable to the position for which the candidate is being considered; or shows demonstrated specialized ability to perform research in the appropriate veterinary medical field.

NOTE: For GS-12 positions and above, at least 1 year of the required experience must have been at the level of difficulty and responsibility comparable to the next lower grade level in the Federal service. For any grade level, the specified length of experience, unless supported by demonstrated quality, type, and scope of activities, will not in itself be accepted as proof of qualification for a position.

SUBSTITUTION FOR EXPERIENCE

Successful completion of graduate study, in addition to the D.V.M. degree, in an accredited college or university, in a field of veterinary or related science (e.g., microbiology, parasitology, pathology, immunology, or other specialty) may be substituted for required experience as follows:

1. All requirements for a master's degree may be substituted for the 1 year of experience required for eligibility at GS-11.
2. For research positions only, all requirements for the Ph. D. degree, including the dissertation, may be substituted for the 2 years of experience required for eligibility at GS-12.

SUPERIOR ACADEMIC ABILITY

Persons demonstrating superior academic ability may be rated eligible for GS-11 if, in the judgment of the appropriate faculty member(s), all requirements completed within the last 2 years for the D.V.M. from an accredited college or university would place them in the upper quarter of the graduating class. "Superior Academic Ability" is defined as that demonstrated by a student on the basis of a total evaluation to graduate in the upper quarter of the graduating class.

SUPERVISORY OR ADMINISTRATIVE ABILITY

For supervisory or administrative positions in field operations or programs, candidates must show demonstrated ability to cooperate and deal successfully and satisfactorily with professional and technical workers, managers of private industrial activities, farmers, ranchers, and officials; and to supervise, administer, or manage the particular type of activity or program. For Supervisory Veterinary Medical Officer positions use the qualification standard for Supervisory Positions in General Schedule Occupations in part III of this handbook in combination with this standard.

SELECTIVE PLACEMENT

For positions in research, laboratory work, or a specialty field, candidates will be considered who meet specific requirements such as specialized training or experience in the specialty or in a particular scientific area, e.g., microbiology, parasitology, or other science.

APPLICANT RATING

Applicants will be rated on a scale of 100 with the individual's rating to be determined by an evaluation of the total experience, education, and personal qualification statements contained in the application and any additional information or evidence received. A WRITTEN TEST IS NOT REQUIRED.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for positions at GS–9 and GS–11:
This group of candidates is evaluated:

—largely on undergraduate and veterinary academic record and, when appropriate, employment experience for the quality of basic knowledge of veterinary medicine;
—additional courses in biology, chemistry, or closely related fields taken either in veterinary school or during preveterinary training;
—grades relative to class standing; and
—the ability to apply theoretical knowledge, work with and gain cooperation of individuals and groups with conflicting interests, and write clear and accurate reports.

Candidates for positions at GS–12 and above:
This group of candidates is evaluated for:

—graduate training beyond the D.V.M. degree and professional experience, using the same factors used for evaluating the undergraduate and veterinary academic record of candidates for positions at GS–9 and GS–11; and
—membership in, and medical presentations before, professional organizations, medical reports in technical publications, participation in seminars and study groups, or other related activities in light of the contribution to the advancement of veterinary medical science, rather than sheer volume of such activities and publications; and
—certification by any specialty board recognized by the American Veterinary Medical Association which should be accepted as *prima facie* evidence attesting to the candidate's qualification and as a positive indicator of the candidate's total quality of education, training, and experience to perform the work in the specialty. The American Veterinary Medical Association has recognized at this time a number of specialty boards to test and pass on a doctor's qualifications in various specialized fields of interest, and to certify the candidate's ability to perform professionally in the specialty.

Those recognized include:

American Board of Veterinary Practitioners
American Board of Veterinary Toxicology
American College of Laboratory Animal Medicine
American College of Theriogenologists
American College of Veterinary Anesthesiologists
American College of Veterinary Internal Medicine
American College of Veterinary Microbiologists
American College of Veterinary Ophthalmologists
American College of Veterinary Pathologists
American College of Veterinary Preventive Medicine
American College of Veterinary Radiology
American College of Veterinary Surgeons

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a

specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

INTERPRETIVE MEMORANDUM

SUBJECT: Interpretation of Intent of Engineer Standards Concerning Lines of Work

We provided the following response to a request for our observations concerning the standards issues in a case involving a determination whether, for purposes of completing a probationary period, a temporary GS–9 mining engineer position involving laboratory research in rock mechanics is in the same line of work as a mining engineer position involving primarily regulatory health and safety inspections of mines.

There are three basic standards issues as follows:

1. What is the relationship of a classification series to a line of work?
2. What is the intent of the position-classification standard for the Mining Engineering Series, GS–880, with respect to lines of work?
3. What is the intent of the governing qualification standard for positions, in the Mining Engineering Series, with respect to lines of work?

Relationship of a classification series to a line of work

There is no simple or single relationship between a series and a line of work. There are two subquestions: What is the meaning of "line of work"? and What is the nature and structure of a series?

Line of work

The concept of a "line of work" in the Federal service varies greatly with the purpose and context of the term. Some, but not all, of the many different meanings of "line of work" in the Federal service are as follows:

—In general and colloquially, a line of work is a profession or occupation. In this context it may or may not be a series. For example, the automotive engineering profession is a part of the Mechanical Engineering Series. Also, positions in the Smokejumper occupation are classified in the Forestry Technician Series. On the other hand, positions in the college instructor occupation or line of work are classified in many different series in accordance with the required knowledge of the subject matter taught.

—In position classification standards, a line of work is a series, or a defined specialization or class in a series, or a group of positions with a common core of required knowledges, skills, and abilities such as to warrant like treatment in personnel processes. A separate title may or may not be prescribed. In some cases, separate grade level criteria are provided. For example, research positions in many engineering and natural science series that are classified by use of the Research Grade Evaluation Guide constitute a line of work for grade evaluation purposes.

—In qualification standards, a line of work is a series, or a specialization, or an examination option, or a group of positions with a common core of required knowledges, skills, and abilities warranting like treatment in the examination process. For example, entry-level clerical positions in many series are covered by a single set of qualification requirements and constitute a single line of work for qualifications examining purposes.

—For purposes of the Whitten Amendment restrictions on promotion, positions are in a line of work classifiable at one-grade intervals or a line of work classifiable at two-grade intervals.

—For purposes of salary surveys, positions are identified as being in a professional, administrative, technical, or clerical line of work.

—For purposes of the Fair Labor Standards Act, employees may be exempt, for example, if they are engaged in administrative, executive, or professional lines of work.

In the above illustrations of the meaning of the term, a "line-of-work" may or may not be a series. However, a key issue is what we mean by a "line-of-work" in determining the acceptability of a temporary position toward completion of a probationary period.

A probationary period is a means of measuring the ability of a candidate to perform the work of a position and as such is an essential and integral part of the examining process. Accordingly, within this context, for purposes of determining completion of a probationary period, positions are in the same line of work if experience in a position demonstrates the knowledges, skills, and abilities required to perform the work of the other job. For this purpose, a line of work may be a series, a specialization in a series, a group of jobs with common qualification in a series, or even positions in several series. For example, a temporary position in the Mining Engineering Series, GS-880, that involved the inspection of coal mines and other duties may be in the same line of work for probationary purposes as a position in the Coal Mine Inspection Series, GS-1822. The determination that performance of the work of a position did indeed demonstrate the knowledges, skills, and abilities required to perform the work of another position needs to be based on careful job analyses of the positions in question, not on the titles.

The nature of series

The various series established under the position classification plan have no uniform concept and vary in type, structure, and breadth. Since the question at issue concerns a professional series, we will so concentrate our discussion.

Illustrative of classification differences among professional series with respect to lines of work are the following:

—The Plant Physiology Series, GS-435, is a relatively narrow professional series, but like almost all other professional series it includes at least two distinct specializations or lines of work with separate titles, separate grade level criteria, separate qualification standards, and significantly different sets of knowledges, skills, and abilities required for the work. The two lines of work are nonsupervisory classes and supervisory classes.

—The Mechanical Engineering Series, GS-830, is a very broad professional series with a common core of knowledge based on the equivalent of a bachelor's degree in mechanical engineering. The series includes many diverse specializations or lines of work, some of which were formerly identified as separate engineering series, e.g., marine engineering, ordnance engineering, and automotive engineering. Many of the specialty fields have subspecialties, e.g., truck design or ballistics research, with distinctive sets of knowledges, skills, and abilities required. Notwithstanding the different lines of work, the only authorized titles are Mechanical Engineer and Supervisory Mechanical Engineer.

—The Patent Examining Series, GS-1224, includes diverse professional positions in many defined specializations or lines of work for which separate class titles have been established. For example, Patent Examiner (Electrical Engineering), Patent Examiner (Textile Technology), and Patent Examiner (Horticulture). Although there is a common core of knowledge of patent examining, the positions in different specializations require professional competence in the different subject areas and represent very different lines of work in terms of required knowledges, skills, and abilities.

—The General Physical Science Series, GS-1301, is a very broad professional series for miscellaneous, not-elsewhere-classifiable professional positions in physical science. It includes diverse positions in undefined specializations or lines of work in physical science with very limited commonality of knowledges, skills, and abilities. This series is not a profession or occupation in the usual sense, but a grouping of miscellaneous unrelated professional positions, and positions in this series generally do not constitute a meaningful line of work.

In summary, in determining the relationship between a classification series and a line of work, careful attention needs to be given to both the structure and content of the specific series and the meaning of line of work in the particular context.

Intent of classification standards for positions in the Mining Engineering Series

With respect to the intent of the position-classification standard for the Mining Engineering Series, GS-880, as to lines of work, we have the following observations:

The classification standard for the Mining Engineering Series originally published in August 1947 included 22 defined specializations or lines of work, each of which represented a separate class of positions at GS-9 (then P-3) with duties, responsibilities, and qualifications requirements different from those of other classes in the series. In addition, there were two general titles of specializations for miscellaneous specialized or general lines of work in the series not elsewhere classifiable.

In recognition of the specialized nature of the health and safety positions, the 1947 standard included a separate statement of the qualifications required for those positions which were different from the qualifications required for positions in other classes in the same series.

The current classification standard for the Mining Engineering Series, issued in February 1967, provides separate class titles for only nonsupervisory and supervisory lines of work. The elimination of the specialized titles did not eliminate the real differences in the qualifications required and did not eliminate the need to treat the positions separately in personnel processes. The training period required for the health and safety position supports this observation.

The classification standard for the Mining Engineering Series requires consideration of the many undefined lines of work with distinctive specialized qualification requirements. In the light of highly diversified and changing programs and job content, the standard provides a simplified classification structure with flexibility to adapt the concept of a line of work to meet the needs of a specific situation through job analysis rather than a complex, incomplete, and rapidly obsolescent set of preselected class titles which often would not fit.

Notwithstanding the all encompassing titles of Mining Engineer and Supervisory Mining Engineer, the intent of the classification standard for the Mining Engineering Series is that the series consists of many lines of work as that concept is used in position classification and qualification standards and in the personnel processes based thereon.

Because of the specialized knowledges, skills, and abilities required for the work of research positions in mining engineering, such positions are evaluated by use of the Research Grade Evaluation Guide rather than the classification standard for the Mining Engineering Series. That Guide formerly specified separate titles for research positions. The elimination of those titles from that Guide did not eliminate the specialized requirements for positions in the research line of work.

It is clearly the intent of the classification standards for positions in the Mining Engineering Series that full consideration should be given to the typical differences in the knowledges, skills, and abilities required for research positions and those required for regulatory health and safety inspection positions, and that the two kinds of positions typically constitute different lines of work warranting separate treatment in various personnel processes.

Intent of the qualification standard

With respect to the intent of the qualification standard for positions in the Mining Engineering Series, we have the following observations:

There is one basic qualification standard for all 80,000 professional engineering positions. The qualification requirements apply equally to positions in all the diverse engineering disciplines and lines of work without specifying the criteria for any specific line of work in engineering:

The standard states:

"This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level."

"Many engineering positions demand specific competence in a particular function or area. For

such positions, certification may be limited to those candidates whose records show evidence of the required capabilities."

The key consideration underlying the one qualification standard for engineering positions is that all positions must satisfy the basic qualification requirement of professional competence in engineering and, in addition, satisfy the specialized requirements of an individual position or line of work as determined by a job analysis. The series or class title may be helpful in determining the requirements but typically would be indicative of only some of the requirements.

The intent of the qualification standard is that in filling positions in the Mining Engineering Series that full consideration be given to the specialized requirements for knowledge, skill, and ability which characterize the specialized line of work of the position to be filled, which is characteristically much narrower than the entire field of mining engineering. The line of work involved may be a specialization in the classification standard, an option in the examination, or merely a kind of work requiring specific qualifications.

An employee qualified as a mining engineer at a certain level is not necessarily qualified for all mining engineer positions at that level. For example, in filling a position of a regulatory mining engineer at a full performance level that requires extensive practical knowledge of mining operations, standards, practices and requirements, it would be appropriate to exclude from consideration as not qualified those candidates whose qualifications involve only graduate education and laboratory research in mining engineering.

It is clearly the intent of the Engineer qualification standard that full consideration should be given to the fact that the knowledges, skills, and abilities required for research positions are typically different from those required for other types of positions and that research positions typically constitute a different line of work warranting separate treatment in the examination process.

On occasion, a research mining engineer might be in the same line of work as a regulatory inspection mining engineer position when a job analysis established that the research position involved mine inspection work that demonstrated possession of the knowledges, skills, and abilities required to perform the health and safety inspection work.

Summary of observations

In summary, consistent with the intent of the position-classification and qualification standards and the probationary period, the fact that two GS-9 positions are both in the Mining Engineering Series does not establish that they are in the same line of work for purposes of determining completion of a probationary period. Moreover, the treatment of research positions in the classification and qualification standards and the separate sets of knowledges, skills, and abilities required for the work of regulatory positions and research positions would typically lead to the conclusion that a temporary research position is not in the same line of work as a regulatory health and safety inspection position for the purpose of the probationary period.

All Professional Engineering Positions, GS-5/15

OCCUPATIONAL COVERAGE

This standard covers positions in all professional engineering series including the following:

General Engineering Series	GS-801
Safety Engineering Series	GS-803
Fire Prevention Engineering Series	GS-804
Materials Engineering Series	GS-806
Civil Engineering Series	GS-810
Environmental Engineering Series	GS-819
Mechanical Engineering Series	GS-830
Nuclear Engineering Series	GS-840
Electrical Engineering Series	GS-850
Electronics Engineering Series	GS-855
Biomedical Engineering Series	GS-858
Aerospace Engineering Series	GS-861
Naval Architecture Series	GS-871
Mining Engineering Series	GS-880
Petroleum Engineering Series	GS-881
Agricultural Engineering Series	GS-890
Ceramic Engineering Series	GS-892
Chemical Engineering Series	GS-893
Welding Engineering Series	GS-894
Industrial Engineering Series	GS-896

NOTE: This standard is not appropriate for the Architecture Series, GS-808, or the Landscape Architecture Series, GS-807. These professional series in the Engineering and Architecture Group, GS-800, are not engineering series.

BASIC REQUIREMENTS FOR ALL PROFESSIONAL ENGINEERING POSITIONS AT ALL GRADES

Candidates must show successful completion of a full 4-year professional engineering curriculum leading to a bachelor's or higher degree in engineering in an accredited college or university. To be acceptable, the curriculum must:

(1) Be in a school of engineering with at least one curriculum accredited by the Accreditation Board for Engineering and Technology (ABET) as a professional engineering curriculum; or

(2) Include differential and integral calculus and courses (more advanced than first-year physics and chemistry) in five of the following seven areas of engineering science or physics: (a) statics, dynamics; (b) strength of materials (stress-strain relationships); (c) fluid mechanics, hydraulics; (d) thermodynamics; (e) electrical fields and circuits; (f) nature and properties of materials (relating particle and aggregate structure to properties); (g) any other comparable area of fundamental engineering science or physics, such as optics, heat transfer, soil mechanics, or electronics.

ALTERNATE REQUIREMENT

Candidates may substitute for the basic requirement an alternate requirement of at least 4 years of college-level education, training, and/or technical experience that furnished (1) a thorough knowledge of the physical and mathematical sciences underlying professional engineering, and (2) a good understanding, both theoretical and practical, of the engineering sciences and techniques and their applications to one of the branches of engineering. This knowledge and understanding must be equivalent to that provided by a full 4-year professional engineering curriculum, with respect to (a) the knowledges, skills, and abilities required to perform professional engineering work in the specialty field of the position to be filled, and (b) the ability to develop and progress in a career as a professional engineer in the specialty field. The adequacy of such background must be demonstrated by one of the following:

1. *Professional registration*

Curent registration as a professional engineer by any State, the District of Columbia, Guam, or Puerto Rico. Absent other means of qualifying under this standard, those candidates who achieved such registration by means other than written test (e.g., State grandfather or eminence

provisions) are eligible only for positions that are within or closely related to the specialty field of their registration. For example, a candidate who attains registration through a State Board's eminence provision as a manufacturing engineer typically would be rated eligible only for manufacturing engineering positions.

2. *Written test*

Evidence of having successfully passed the Engineer-in-Training (EIT) examination, or the written test required for professional registration, which is administered by the Boards of Engineering Examiners in the various States, the District of Columbia, Puerto Rico, and Guam.

Candidates who have completed all the requirements for a bachelor's degree in engineering technology (BET) including 60 semester hours of courses in the physical, mathematical, and engineering sciences and in engineering as listed in the basic requirements, in an accredited college or in a program accredited by the Accreditation Board for Engineering and Technology (ABET), *and who pass the EIT examination*, may be rated eligible for certain engineering positions at GS-5. Eligibility is limited to positions that are within or closely related to the specialty field of the engineering technology program. Positions covered by the minimum educational requirement, which involve highly technical research, development, or similar functions requiring an advanced level of competence in basic science are excluded.

Because of the diversity in kind and quality of BET programs, graduates of other BET programs are required to complete at least one year of additional education or highly technical work experience of such nature as to provide reasonable assurance of the possession of the knowledges, skills, and abilities required for professional engineering competence. The adequacy of this background must be demonstrated by passing the EIT examination.

3. *Specified academic courses*

Successful completion in an accredited college or university of at least 60 semester hours of courses in the physical, mathematical, and engineering sciences and in engineering. These must have included the courses specified in the basic requirement. The courses must be fully acceptable toward meeting the requirements of a professional engineering curriculum as described in the basic requirements.

4. *Related curriculum*

Successful completion in an accredited college of a full 4-year or longer related curriculum leading to a bachelor's or higher degree in engineering technology or in an appropriate professional field, e.g., physics, chemistry, architecture, computer science,* mathematics, hydrology, or geology may be accepted in lieu of a degree in engineering, provided the candidate has at least 1 year of professional engineering experience acquired under professional engineering supervision and guidance. Ordinarily there should be either an established plan of intensive training to develop professional engineering competence, or several years of prior professional engineering-type experience, e.g., in interdisciplinary positions. (Please note that the above list of examples of related curricula is not all-inclusive.)

MINIMUM EDUCATIONAL REQUIREMENT FOR CERTAIN RESEARCH AND DEVELOPMENT POSITIONS

For positions involving highly technical research, design, development, or similar functions, candidates are required to show the successful completion of a full course of study in an accredited college or university leading to a bachelor's or higher degree in engineering or a related field.

The duties of such positions require application of a high level of fundamental scientific knowledge in the development, interpretation, and evaluation of new scientific knowledge, techniques, or products.

Note: The minimum educational requirement of all courses leading to a bachelor's degree does *not* apply to *all* research, development, and similar positions. There are, for example, some

*Please see series definition and qualification standard for the Computer Science Series, GS-1550.

development engineering positions which involve work that can be performed by professionally-competent engineers with several years of engineering education, but less than a bachelor's degree. The talents of such persons who demonstrate possession of the required knowledges and abilities are needed to perform professional development engineering work. Every effort should be made to design jobs to make use of this valuable resource.

GS–5—The basic and alternate requirements which apply to all grades are fully qualifying for grade GS–5. Except for specified selective placement factors, a candidate with a degree in engineering accredited by ABET may qualify for positions at GS–5 in any branch of engineering.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the GS–5 requirements. Such professional experience or graduate education must have been in engineering or a related field.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he/she is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (*Years*)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal Service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal Service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; or Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph.D. or equivalent); or Three full academic years of graduate education.
GS–11 Research Positions	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study.

c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.

GS–12 Research Positions.— Completion of all requirements for a doctoral degree (Ph.D. or equivalent) for appointment to such positions as meet the following criteria:

a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature.

b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph.D. or equivalent) level.

c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combination of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (The material included in Part II of Handbook X–118 under "Common Pattern of Grade Eligibility Based on Graduate Education" is applicable to this standard.)

4. *Alternate requirements for GS–7*

a. Superior academic achievement at the baccalaureate level in an engineering curriculum or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of Handbook X–118 must be met; or

b. Candidates with an engineering degree who have appropriate experience as a technician equivalent to grade GS–5 or higher may have such experience credited for grade GS–7 only on a month-for-month basis up to maximum of 12 months; or

c. Successful completion of a 5-year program of study of at least 160 semester hours leading to a bachelor's degree in engineering, in an accredited college or university, is qualifying at GS–7. A combination of the completion of a 5-year bachelor's degree program in engineering of at least 160 semester hours and 1 year of appropriate professional experience is qualifying at grade GS–9.

NOTE: These provisions apply to graduates of professional engineering curricula only.

Definition of Professional Engineering Experience

The professional engineering experience required for grades GS–7 and above is defined as nonroutine engineering work that required and was characterized by (1) professional knowledge of engineering; (2) professional ability to apply such knowledge to engineering problems; and (3) positive and continuing development of professional knowledge and ability.

Professional knowledge of engineering is defined as the comprehensive, indepth knowledge of mathematical, physical, and engineering sciences applicable to a specialty field of engineering which characterize a full 4-year pro-

fessional engineering curriculum leading to a bachelor's degree, or the equivalent.

Professional ability to apply engineering knowledge is defined as the ability to (a) apply fundamental and diversified professional engineering concepts, theories, and practices to achieve engineering objectives with versatility, judgment, and perception; (b) adapt and apply methods and techniques of related scientific disciplines; and (c) organize, analyze, interpret, and evaluate scientific data in the solution of engineering problems.

Positive and continuing development of professional knowledge and ability is defined as an action program involving activities such as the following as appropriate to the circumstances:

(a) Developing new approaches, methods, or techniques for the solution of engineering problems;
(b) Formal or informal training and guidance on the job by specialists or more mature professionals;
(c) College-level academic study;
(d) Participation in seminars, conferences, and technical committees of professional societies and other organizations;
(e) Review and study of the professional literature of engineering and related scientific fields;
(f) Publication of professional papers;
(g) Attaining registration as a professional engineer.

Professional work in engineering, like that of other professions, is marked by continuing personal effort to keep abreast of the advancing and changing discipline. Continuing education in engineering and related fields is an important element of full professional competence as an engineer which should be considered in evaluating the qualifications of candidates for professional engineering positions. Engineering technicians who desire to make the upward mobility transition to professional engineer must not only satisfy the basic or alternate requirements of this standard, but should plan on continued academic course work.

In some situations, experience may be creditable even if it is not clearly professional engineering work. In such cases, the experience must have been preceded by prior responsible professional engineering experience and must contribute directly and significantly to the candidate's engineering competence. For example, an engineer might be assigned to a management-type position in preparation for assumption of higher-level responsibilities in engineering project or program management.

GRADUATE STUDY

1. Regardless of the field of undergraduate study, completion of the requirements for a master's or higher degree in engineering is fully qualifying for the grade indicated in this standard, provided the candidate's total background demonstrates evidence of knowledges, skills, and abilities that are substantially equivalent to those acquired through the successful completion of the course-work specified in the basic requirement.

2. With a bachelor's degree in engineering, graduate education in a related field is acceptable in lieu of graduate study in engineering for appropriate types of positions. For example, a B.S. in engineering plus a 2-year master's degree in business administration would be qualifying for Industrial Engineer, GS–9, but not for GS–9 laboratory positions in research and development. The key consideration in determining if such graduate education should be credited is whether or not the education provided the knowledges, skills, and abilities necessary to perform the work of the position being filled.

3. See the section entitled "Common Pattern of Grade Eligibility Based on Graduate Education" in Part II of Handbook X–118 for a discussion of the number of credit hours considered equivalent to "one full academic year of graduate education.

EXTRA CREDIT FOR CREATIVE RESEARCH OR DEVELOPMENT CONTRIBUTION

Candidates for research and development positions who have made a significant, creative

research, or development contribution in a field, may be rated eligible for the next higher grade than that for which they would otherwise qualify on the basis of the standard requirements paragraphs. However, this provision for an extra grade does not apply to candidates who qualify for a particular grade on the basis of meeting the graduate education requirements.

To receive this credit for an extra grade, a candidate must have achieved the distinction of making a significant, creative research, or development contribution to the field. This research or development must have been on a previously unsolved problem or problems. It must have been creative in that it produced a basic principle, concept, method, approach, or technique. In addition to solving the specific problem, it should be applicable in the solution of other problems.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of Handbook X-118, to be used with this standard.

SPECIAL COMPETENCE IN PARTICULAR AREAS OF ENGINEERING

Many engineering positions demand specific competence in a particular function or area. For such positions, certification may be limited to those candidates whose records show evidence of the required capabilities. Because of the interrelationships of engineering fields and education therein, no specific length of specialized experience is required.

NOTE: The absence of such a requirement does not preclude use of options in an examination. The position-classification standards for various engineering series may be useful in identifying specialized requirements when they are essential.

ENGINEERING REGISTRATION

Registration as a professional engineer is an appropriate selective placement factor for appointment to certain, typically high level, engineering positions. The key consideration is that registration must be *essential* for acceptable performance of the work of the position to be filled. Accordingly, it is an appropriate requirement for positions whose duties and responsibilities satisfy one of the following criteria:

—The position involves responsibility for final approval of designs of major structures and facilities involving public safety where such compliance with State laws meets an essential need of the engineering organization to provide objective evidence to agency management and the public that the work is performed by engineers of proven competence.

—The position involves responsibility for engineering determinations concerning contract awards or other major aspects of design and construction work to be performed by engineers in the private sector, where registration is essential to have their full confidence and respect to achieve cooperation on critical engineering issues.

When an organization determines that it has an engineering position which has duties and responsibilities that would support a requirement for registration and establishes such a requirement, the position description should clearly document the basis for the requirement. It would be inappropriate to require that candidates be registered for positions with less responsibility than that indicated above, for positions that involve responsibilities and functions such as research and development, or for the sole purpose of improving the "image" of engineers in the Federal Service.

For those engineering positions that do not require registration, professional registration or certification as an engineer-in-training may be considered as a factor in evaluating the qualifications of candidates and in determining their relative ranking.

Because of the importance of registration for those positions where it is an appropriate requirement, such positions have been char-

acteristically filled by registered professional engineers. However, if there are any engineers who are not registered but who are serving in positions for which registration is required, they would not be directly affected by the establishment of this requirement. Persons serving in positions at the time new requirements are established are treated as "grandfathers" as though they met the requirements.

The Engineer-in-Training Test

The Engineer-in-Training (EIT) test is the first part of the professional registration examination for engineers in the various States. The EIT test is a test of engineering fundamentals generally taken by engineering school seniors or recent graduates. Those who pass are certified as Engineer-in-Training. The second part of the registration examination, covering practice in a branch of engineering, is taken after a specified period of experience required for registration as a professional engineer.

The EIT test is used under this standard to determine whether competitors without a degree in engineering or other qualifying education have a knowledge and understanding of mathematical, physical, and engineering sciences required to perform professional engineering work in a specialty field of engineering. This test is not to be considered as being *in lieu* of the requirement of at least 4 years of experience and/or education which might be regarded as providing such knowledge.

The EIT test is developed and administered by the State Board of Engineering Examiners in each State or comparable jurisdiction. The test is not administered by the U.S. Office of Personnel Management. Persons who desire to take the Engineer-in-Training test should direct their inquiries to the Secretaries of the appropriate State Boards.

EVALUATION OF TECHNICIAN EXPERIENCE

Section II, part II of Handbook X–118 contains special provisions for evaluation of technician experience for professional positions for certain inservice placement actions.

COLLEGE TEACHING

College-level teaching of engineering may be considered as professional experience in engineering. In accepting and evaluating teaching experience, all specific qualification requirements pertaining to the evaluation of professional experience such as grade level, responsibility, scope, specialization, and knowledges required, are also applicable to the evaluation of teaching experience. Teaching experience that is accompanied by a significant amount of research, direction of research, investigative, or similar work may be credited at full value in meeting a specific requirement for research, investigative, or similar experience.

BASIS OF RATING

Candidates will be rated on a scale of 100 on the basis of an evaluation of their personal and professional qualifications as indicated by data furnished in their application forms, and by information which may be gained through confidential inquiries to their superiors, associates, and other professional references.

In evaluating qualifications, consideration will be given to performance as a certified or registered member of the profession, as well as to publications, inventions, participation in public affairs, membership in and creative work for professional or scientific societies, and work cited by special honors and fellowships.

GUIDE FOR THE EVALUATION OF QUALIFICATIONS

Engineering curricula

The Accreditation Board for Engineering and Technology (formerly the Engineers' Council for Professional Development) accredits specific engineering and engineering technology curricula; it does not accredit institutions. Thus, an accredited college may have (1) ABET-accredited professional engineering curricula; (2) professional engineering curricula that are not ABET-accredited; and (3) 4-year

curricula in engineering technology which may or may not be ABET-accredited.

The Accreditation Board for Engineering and Technology publishes two bulletins: "Accredited Curricula Leading to First Degrees in Engineering" and "Accredited Curricula Leading to First Degrees in Engineering Technology." Those wishing to obtain copies of these bulletins should contact the Accreditation Board for Engineering and Technology, 345 East 47th Street, New York, N.Y. 10017. A summary of ABET-accredited engineering programs also appears periodically in the *Journal of Engineering Education*.

A number of institutions offer a 4-year curriculum leading to a bachelor's degree in engineering technology. There are significant differences in a typical curriculum in engineering and one in engineering technology. Some BET curricula are similar to engineering curricula, although they are somewhat narrower in range of subject matter, emphasize current engineering practice, and offer less depth in science and mathematics. While a curriculum in engineering technology is not fully equivalent to a professional engineering curriculum, some BET programs provide knowledge of mathematical, physical, and engineering sciences which approaches the minimum requirements for professional competence within a closely-related specialty field involving primarily well-established engineering practice.

Some engineering curricula are acceptable as meeting the basic requirement even though such curricula are not specifically accredited by the Accreditation Board for Engineering and Technology. As a general rule, any professional engineering curriculum in an engineering school that has one or more of its curricula accredited by ABET may be accepted. It should be noted, however, that some universities have curricula identified as engineering curricula outside the engineering school, e.g., in the school of architecture or forestry. Such curricula need to be reviewed to see if they comply with the requirements of paragraph (2) of the basic requirement.

Evaluation of experience as providing equivalent knowledge of engineering

For candidates who have not completed a professional engineering curriculum, an appropriate score on the EIT test is not automatically qualifying. Candidates must also show that they have 4 years of education and/or experience which provided the equivalent knowledge of engineering.

Generally, experience in itself will not give a candidate the familiarity with engineering concepts and principles and the basic scientific knowledges needed for a professional approach in the solution of engineering problems. Experience must be supplemented with the study of appropriate and pertinent literature. The study may be formalized in the sense that it is performed at a college or university (day or night time study) or it may be informal and performed with a minimum of guidance from skilled teachers. Direction of the study may come from qualified engineers with whom the person is working, from paid tutors, or, in part, from extension or correspondence courses.

Eligibility depends not merely on length of experience, but on the substituted experience being, in itself, an education. In evaluating the individual's professional knowledge and development the following attributes are important. The professional should:

(a) know where and how to find the answers;
(b) have the ability to select and apply theory to achieve results;
(c) engage in professional development;
(d) exercise initiative in resolving engineering problems;
(e) have the ability to discuss technical issues effectively;
(f) have the ability to write and evaluate technical reports.

Occasionally, it may be proposed to qualify a high-level engineering technician as a professional engineer even though the incumbent lacks the breadth and depth of background required of an engineer. This may result from the outstanding performance of the technician having

an impact on the job significant enough to change the level of the work. Also, the work assigned to the technician may include assignments and work objectives comparable in difficulty to those of professional engineers in relatively high grades. The technician should not be qualified as an engineer unless he or she satisfies the basic or alternate requirements for all positions. Otherwise the position should be classified to the Engineering Technician series, GS–802, or other appropriate technician series. (Additional information on this point is contained in the Introduction to the Position-Classification Standards, Section II, B The Impact of the Employee on the Job, and in the Introduction to the Engineering and Architecture Group, GS–800.)

What to look for in establishing grade and quality levels

The introduction to the position-classification standards for the Engineering and Architecture Group, GS–800, the grade-evaluation guides for functional areas in engineering, and the classification standards for the engineering series discuss the nature of the work, and the knowledges and abilities required for professional engineering work at the various grade levels. The classification standards are a basic and valuable source of background information on engineering positions in the Federal Service.

The following considerations are offered as guides in determining the quality and level of a candidate's professional background:

1. To be qualifying, the experience offered should show the use of judgment in applying professional principles. The experience should require more than the routine observation and recording of technical data. The experience should enable the candidate to advance in professional knowledge and develop mature professional judgment.
2. Engineers frequently must weigh technical procedures, economic, and business considerations in making decisions. Experience which provides for this type of analysis is valuable.
3. Supervision by professional engineers capable of providing professional guidance and contributing to professional growth is very important at the lower grade levels.
4. Supervision or review of the work of others is valuable in broadening the background and maturing the professional judgment of the candidate.
5. Public speaking and negotiating experience is valuable.
6. Consideration should be given to performance as a licensed or registered member of the profession, as well as to publications, inventions, participation in public affairs, membership in and creative work for professional or scientific societies, and work cited by special honors and fellowships.
7. Continuing education, formal or informal, is an essential element of professional engineering competence and should be appropriately assessed.
8. Because of the increasing use of computers as a tool in performing engineering work, education which included course work in computer-based engineering analysis and/or design would normally enhance a candidate's qualifications.

MEDICAL QUALIFICATION STATEMENT

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation

may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

ENGINEERING TECHNICIAN SERIES

Engineering Aid GS-1/3
Engineering Technician GS-4/12

DESCRIPTION OF WORK

Engineering aids and technicians perform technical work in research, development, test, design, or other engineering functions. Their work is allied to one of the branches of engineering such as civil, electrical, or mechanical. Typical duties include testing engineering materials and equipment; performing calculations; setting up and operating laboratory equipment and instruments; preparing technical reports, plans, specifications, and estimates; and related work.

In lower grade positions, employees typically work as aids to professional engineers, scientists, or higher grade technicians. At the higher grades assignments may be comparable in difficulty to those of professional engineering positions. Positions in this occupation do not require training equivalent in type and scope to a professional engineering curriculum.

EXPERIENCE, TRAINING AND RELATED REQUIREMENTS

Experience requirements

Candidates must have had experience as described below. (Education may be substituted for experience.)

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-1	0	0	0
GS-2	½	0	½
GS-3	1	0	1
GS-4	1½	½	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5
GS-8 and above	2	4	6

General experience

General experience is that which provided familiarity with engineering technician work or which provided knowledges that would be helpful in developing skill in making measurements, using test instruments, computing, reading engineering drawings or specifications, or other engineering technician work. The following are examples of qualifying general experience:

—Apprentice training which included instruction in mathematics, mechanical drawing, drafting, estimating, or other work related to that of technicians.
—Rodman, chainman, notekeeper, or instrumentman on a surveying team.
—Draftsman or aid to an engineer, architect, or scientist.
—Laboratory mechanic or aid assisting in conducting tests or operating instruments.

Specialized experience

The specialized experience must have involved nonprofessional technical work which provided the knowledges and skills needed for work in the specialty field. The specialized experience must have provided the candidate with knowledge of some of the pertinent principles, methods and techniques of engineering. Illustrative occupations which may provide specialized experience are positions of draftsman, surveying technician, construction estimator, physical science or mathematics technician, etc.

Experience in a trade or craft may be credited as specialized experience when the work provided intensive knowledge of engineering principles, techniques, methods, and precedents. Examples are trade positions with substantial developmental, test, or design responsibilities, e.g., a planner and estimator who analyzed designs for production purposes, or an instrumentmaker or modelmaker who performed design or development work on devices fabricated.

Quality and level of experience

For grade GS-1, no experience, training, or education is required. No written test is required. Candidates must be interested in and willing to learn and perform engineering aid work and show evidence of likelihood of success in these assignments.

For eligibility *at grade GS-4*, the 6 months of required specialized experience must have been comparable in difficulty and responsibility to the GS-3 grade level.

For eligibility *at grade GS–5*, at least 1 year of the required experience must have been comparable in difficulty and responsibility to the GS–4 grade level. At least 6 months of this experience at the GS–4 level must have been specialized experience.

For eligibility *at grades GS–6 through GS–11*, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service.

For eligibility *at GS–12 and above*, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must demonstrate that he possesses the ability to perform the duties of the position.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook will apply.

WRITTEN TESTS

Candidates for positions in grades GS–2 and GS–3 must pass a written test of abilities necessary to learn the duties of engineering aid positions.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

GS–2: Graduation from a full 4-year or senior high school, or possession of a General Educational Development High School Equivalency Certificate, may be substituted in full for the experience requirements at the GS–2 level. (High school education, or the General Educational Development High School Equivalency Certificate, may not be substituted for any part of the experience requirements for GS–3 and above.)

GS–3: One academic year of appropriate post-high-school education may be substituted for 1 year of experience, and meets in full the experience requirements at the GS–3 level. This education must include at least 9 semester hours in any combination of courses such as: engineering, engineering or industrial technology, construction, physics, drafting, surveying, physical science, or mathematics.

GS–4: Two years of post-high-school academic study which included at least 18 semester hours in any combination of the subjects as listed above for GS–3, may be substituted for 2 years of experience including ½ year of specialized experience. This meets in full the experience requirements at the GS–4 level.

GS–5: Successful completion of (*a*) a full 4-year course in a college or university leading to a bachelor's degree with major study in an appropriate field of engineering, construction, or industrial technology, or (*b*) 4 years of academic study which included at least 36 semester hours in any combination of the courses listed under GS–3 above, may be substituted for 3 years of experience including 1 year of specialized experience, and meets in full the experience requirements at the GS–5 level.

Appropriate education and training other than that outlined above, such as in manpower development programs or military training programs, will be granted credit on a month-for-month basis.

ENGINEERING TECHNICIAN SERIES

At any grade, post-high-school education or training which is acceptable under these standards may be substituted for part of the required experience on a pro rata basis.

EXTRA CREDIT FOR OUTSTANDING COMPETENCE (OPTIONAL PROVISION)

Candidates who show positive evidence of outstanding competence and exceptional accomplishment may be rated eligible for the next higher grade than that for which they would otherwise qualify. Such candidates must demonstrate (*a*) outstanding competence based on a combination of factors such as subject-matter knowledge, creativity, specialized skills, progression of experience, and continuing growth through academic study; (*b*) a record of accomplishment which is recognized in the professional and technical community as exceptional and is marked by awards, published papers, citations, patents, or similar evidence; (*c*) proven ability to perform fully the work of the position to be filled; and (*d*) that they are clearly outstanding with respect to candidates with comparable backgrounds of experience and training.

BASIS OF RATING

Competitors for all positions will be rated on the quality and extent of experience, education, or training in relationship to the duties of the positions. Ranking will be made on the following basis:

For GS-1: An evaluation of the candidate's willingness to do simple and repetitive engineering aid work to learn simple procedures; his dependability; and his ability to work safely.

For GS-2 and GS-3: Written test scores.

For GS-4 and above: An evaluation of experience, education and training in relationship to the duties of the position.

INSERVICE PLACEMENT ACTIONS

Written test

The written test required at GS-2 and GS-3 should be waived for inservice placement actions.

Credit for high school education

For inservice placement actions, high school education may be credited in accordance with the "add-on" rule; that is, the employee need show only that he has acquired the additional qualifications required for the new position. Thus, a high school graduate appointed at GS-2 needs 6 months of experience to qualify for a grade GS-3 position.

Waiving directly applicable specialized experience requirement at GS-4 and GS-5

For inservice placement actions only, the requirement for specialized experience for positions at grades GS-4 and GS-5 may be waived for lateral reassignment of employees in related technician or trades occupations provided:

1. The candidate has had experience which has provided knowledge of the work of the position for which he is being considered; and
2. A review of the candidate's experience and performance indicates that he possesses the necessary skills and abilities, and evidences definite potential for successful performance of the work.

Accepting experience in other occupations as specialized experience

Many engineering technician positions are mixed positions in that they include duties that characterize other occupations or specializations. For inservice placement actions to such positions, experience that is qualifying for the other occupation may be accepted as specialized experience, provided the candidate's total record of experience, education, and training demonstrates the ability to perform the work of the position to be filled. For example, experience as a cartographic technician may be accepted as specialized experience for an engineering tech-

nician position that includes, to a substantial degree, cartographic technician duties.

SELECTIVE PLACEMENT

Some positions may require particular knowledges and skills within a specialization, such as design practice for shipboard piping systems. For such positions, consideration may be limited to those candidates whose records show that they have the required knowledges and skills.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for beginning level engineering aid positions should have the ability to use high school level mathematics, the ability to read and understand simple specifications, instructions, and procedures, and the ability to learn engineering technician duties.

At the higher levels, engineering technicians need to know and to be able to apply, in increasing measure, practical knowledges, skills, and abilities, such as the following:

—Ability to read and interpret engineering and architectural plans and specifications.
—Knowledge and ability to use engineering formulas and measurement systems in the specialty field.
—Knowledge of engineering instruments, equipment, and systems appropriate to the specialization and including, in some instances, calibration skills.
—Knowledge of testing procedures and techniques in the applicable specialization.
—Ability to do design work in the specialization.
—Knowledge of the properties, characteristics, strengths, weaknesses, etc., of the materials, items, or products of the specialization.
—Ability to prepare analytical reports.
—Knowledge of construction, fabrication, or manufacturing techniques and procedures.
—Knowledge of safety practices.
—Ability to communicate effectively with technicians, mechanics, engineers, public officials, user agency representatives, etc.
—Ability to work effectively in stress situations.

Evaluation of education and experience

Evaluation of education and experience for both open-competitive and inservice placement actions logically includes the degree and scope of the candidate's knowledge, skills, and abilities which can be brought to bear upon duties of the position to be filled or in the area of specialization of the position. Such knowledge and abilities may have been obtained on the job or in courses related to the work of the position.

In ranking individuals, detailed facts about the position requirements need to be established. For a position which requires specialized knowledge and abilities, experience gained in the particular kind of work and in the same or a directly related field as the position to be filled should normally be ranked as highest quality. Experience in work which is similar to the duties of the position but in a less closely related field, or experience in work which is different from that of the position but in the same or closely related field, should be ranked at lower levels, or as nonqualifying, depending upon the extent of relatedness and needs of the position.

Curricula in Engineering Technology

There is a large number of college-level programs leading to a 2-year associate degree or a 4-year bachelor's degree in engineering technology or in closely related construction or industrial technology.

The 4-year curricula in engineering technology have generally evolved from 2- or 3-year technical institute programs in one of the branches of engineering technology. They are characterized by emphasis on basic mathematical, physical, and engineering sciences and their application to a portion of the spectrum of engineering activities. The mathematics typically includes some work beyond college algebra and trigonometry and basic concepts of calculus. The courses in science and mathematics are intended to provide a base for further study

to cope with technological change. The program does not, however, include training in science and engineering fundamentals as extensive and intensive as that characterizing an engineering curriculum. The Engineers' Council for Professional Development (ECPD) accredits curricula in Engineering Technology as well as curricula in Engineering. Accredited curricula in Engineering Technology are clearly identified as such and are not designed to prepare persons to perform professional work as engineers. The Council prepares annual listings of accredited programs in engineering technology and in engineering. (In ranking eligibles on the basis of completed education consideration should be given to whether the curriculum is accredited by ECPD).

CERTIFICATION

Engineering technicians may be certified by the Institute for Certification of Engineering Technicians, an organization sponsored by the National Society of Professional Engineers. They may be certified as Junior Engineering Technician, Engineering Technician, or Senior Engineering Technician.

The education and experience requirements established by the Institute are as follows:

Junior Engineering Technician: Two years of experience requiring elementary technical ability or be a graduate of a program in engineering technology accredited by the Engineers' Council for Professional Development, or the equivalent.

Engineering Technician: In addition to the above, 5 years of applicable experience.

Senior Engineering Technician: In addition to the requirements for Engineering Technician, at least 10 years of experience of a high level technical nature.

A written test covering scientific fundamentals and practical experience in a specialty may be required for candidates who are not graduates of ECPD-accredited curricula.

Certification by the Institute will be helpful as a measure of the quality of experience. The requirements at the Junior level are comparable to those in this standard for grade GS–4. However, the requirements for certification at the higher levels would not correspond to any specific grade level.

Methods of evaluation

Useful procedures for evaluating candidates for technician positions are described in FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement. Several procedures, including job element rating, are suggested in this material, one or more of which may be appropriate for the varied types of positions classified in this series.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 4.

Landscape Architect GS-5/15

DESCRIPTION OF WORK

Landscape architects perform professional work in physical land planning and design. Based on analysis of land characteristics, operational requirements, land-use densities, and commensurate land values, they produce both overall plans and project designs for integrated land development. The work may include: investigation, selection and allocation of land and water areas for appropriate uses; feasibility studies; formulation of graphic and written criteria to govern land planning and construction programs; preparation, review, and analysis of master plans for land use and development; production of graphic area plans; preparation of working drawings such as site plans, grading and drainage plans, planting plans and construction details; specifications, cost estimates, and reports for land development; collaboration in the design of roads, bridges, and structures with respect to the functional and esthetic requirements of the areas on which they are to be placed; negotiation and arrangement for execution of land area projects; field supervision or inspection of land area construction, restoration, and maintenance. These services are typically performed for national parks and parkways, national forests, highways, recreational and resort areas, airports, multiuse reservoirs, public buildings and institutions, land subdivisions, housing developments, communities, national cemeteries, military installations, and their component areas and facilities.

KNOWLEDGES, ABILITIES, AND PERSONAL CHARACTERISTICS REQUIRED

The following knowledges, abilities, and personal characteristics are required for successful performance of landscape architectural duties. They will be used as rating factors in the evaluation of applicants' experience. All of these knowledges, abilities, and personal characteristics are not required by every landscape architectural position, nor will they be possessed by every eligible applicant to the same degree. All applicants will be evaluated and ranked according to the degree to which they possess the knowledges, abilities, and personal characteristics required by the position applied for. This evaluation and ranking will be based on the scope and quality of each applicant's experience, education, knowledges, abilities, and personal characteristics and not on length of experience.

1. Ability to gather information, to evaluate and analyze functional needs, and to accommodate these needs in physical land planning and design.
2. Knowledge of ground and water forms, vegetation, structures, and pavements together with their design relationships.
3. Technical ability to transmit design ideas, including the ability to draft and sketch and to write narrative reports on technical problems.
4. The ability to explain and interpret design ideas fully and accurately through oral presentation.
5. Creative design ability including, where feasible, ability to preserve and enhance actual and potential esthetic values.
6. Knowledge of the allied physical planning fields of architecture and civil engineering as they affect land development.
7. Knowledge of the biological sciences of agronomy, plant ecology, horticulture, and botany as they affect land development.
8. Personal qualities and skill necessary for coordinating activities and negotiating.
9. Initiative and willingness to accept responsibility.
10. For positions requiring direction of the work of others, ability to supervise professional and other personnel.

BASIC REQUIREMENTS FOR ALL GRADES

Applicants for all levels must have successfully completed the basic requirements specified under either A or B below or they must have had a combination of the two equivalent in time and content to A or B:

A. A successfully completed full 4-year course in an accredited college or university leading to a bachelor's degree in landscape architecture or landscape design.

B. For each year short of graduation, a candidate lacking a degree must have 1 year of experience under professional leadership and guidance of such character and diversity as to be a satisfactory substitute for the required education. This experience must have included original landscape design. Performance of work must have demonstrated a thorough knowledge of the fundamental principles of professional landscape architecture and an understanding equivalent to that which would have been acquired through the successful completion of a full 4-year curriculum as described in "A" above.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, landscape architecture.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Creative planning.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or planning nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade.

(Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

a. Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

b. Successful completion of a 5-year program of study of at least 160 semester hours leading to a bachelor's degree in landscape architecture, in an accredited college or university, is qualifying at GS–7.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

NONQUALIFYING EXPERIENCE

The following kinds of experience are not acceptable as professional landscape architectural experience: routine drafting or developing of plans where original investigations or designs are not involved; laying out or executing illustrations in black-and-white or in color; nursery work involving the propagation of trees, shrubs, vines, etc.; experimental, horticultural, or landscape gardening; breeding, testing, propagation, culture, and production of plants, flowers, trees, crops, etc.; forestry work involving the management of forest resources for the continuous production of timber, water, forage, and other forest values; architectural and engineering work involving the design of structures; work in city and community planning that relates primarily to the broad social and economic growth of cities and communities and the organization of community services and facilities.

BASIS OF RATING

Competitors will not be required to report for a written test but will be rated on a scale of 100 on the quality of their experience and training as related to the duties of the position. Such ratings will be based upon an evaluation of the applicants' education, experience, knowledges, abilities, and personal characteristics as outlined in their applications and upon any additional evidence received by the Civil Service Commission. The quantity of experience will not, in itself, be accepted as proof of their qualifications. Applicants should give a clear and complete description of their experience and training and the projects they have worked on that show their possession of the required knowledges, abilities, and personal qualities for landscape architectural positions.

CONFIDENTIAL INQUIRIES

Confidential inquiries may be made of persons who are qualified to evaluate the individual applicants for these positions as an additional means of determining whether the applicant's experience is of the quality sought. References will be asked to evaluate candidates on characteristics necessary for job success in these positions. Candidates will be rated ineligible where information is received which indicates that the applicant does not possess the necessary qualifications.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3.

GUIDES FOR APPRAISING CANDIDATES

Evaluating education in a related field of science or technology

Applicants with education in a related field of science or technology, in lieu of education or a degree in landscape architecture or landscape design, will be evaluated by determining the extent to which the curriculum of the course pursued provides the candidate with those knowledges and abilities required for professional

work in landscape architecture. The value of such education will be assessed by comparing it with accredited bachelor's degree curricula in landscape architecture. This cannot be done solely on the basis of course titles, but must be done on the basis of course content.

Evaluation of experience as equivalent to a degree in landscape architecture

A degree in landscape architecture indicates that an applicant has the basic background to perform professional landscape architectural work at the beginning professional levels and has the potential to develop the skills and abilities required at the higher levels. This education develops taste, imagination, and other important qualities that are difficult to measure, in addition to providing technical knowledge. Experience may be substituted for education to the extent that it provides the equivalent background. However, because an education provides some knowledges that cannot be measured in terms of course content, but rather are part of general knowledges and cultural background gained as a result of interrelationships among courses, careful judgment must be used in evaluating experience substituted for education as provided for in paragraph B of the basic requirement.

The objective of providing for the substitution of experience for education is to avoid excluding proven professional landscape architects from the Federal service. However, relatively few applicants will qualify on the basis of experience alone. The time required in the case of an individual applicant to acquire the required experience may take substantially more than 4 years. In view of the breadth and depth of training required, it is rare that a person will qualify without some course work in addition to experience.

An applicant who applies on the basis of experience in lieu of education is required to show how his experience demonstrates that his background is equivalent to a degree, i.e., how projects the applicant has worked on show that he has ability in general planning and design; in grading; in construction; in planting; and in oral, written, and graphic presentation of design. This experience must also demonstrate that he has the personal characteristics required. In order to qualify at the entrance level, non-degree applicants typically must have experience or study which includes site planning; layout of circulation patterns; grading and drainage plans; planting plans; collaboration with architects and/or engineers; and the supervision or review of landscape construction.

The knowledges and abilities for positions in this series are developed in various landscape architectural courses. Therefore, it is possible, to some extent, to match knowledges gained through experience to that gained through education. This may be done by comparing the kinds and amounts of the applicant's experience or study with the content of typical landscape architecture curricula in accredited schools. Thus, certain knowledges acquired through experience or study are substitutable for comparable subjects of landscape architectural curriculum as listed in college catalogs. For example, a man working in a horticultural nursery could, through experience with plant materials, gain the required knowledge of agronomy, plant ecology, horticulture, and botany. A man working as a draftsman for an architectural or engineering firm could acquire the required ability to draft and sketch.

Points to be considered in evaluating experience required for positions above the entrance level

1. The experience required for positions above the entrance level does not demand recency for each piece of experience demonstrating possession of the required knowledges, abilities, and personal characteristics. For example, an applicant may be qualified for a position at a high grade level even though he has no recent experience demonstrating knowledge of plant materials.

2. Work under the supervision and guidance of professional landscape architects who contribute to the development of the applicant is of value at the beginning levels; at the higher

levels, however, the applicant's reputation or authoritativeness in the profession is an indication of the quality of his experience.

3. The applicant's experience must show a progressive degree of complexity of assignments and of responsibility. This includes the following considerations:

a. The judgment and creativity displayed by the applicant in evaluating functional needs and accommodating them in landscape design should increase in depth with the increase of the grade level of the position applied for, and should be evaluated accordingly.

b. Applicants should be given credit for experience that includes work on projects that vary in type, topographic conditions, and climatic conditions.

4. Applicants who have enhanced their professional development through advanced study, or who have made unusual contributions to the field of landscape architecture, should be recognized for these things in the evaluation of the quality of their experience.

Architect, GS-5/15

DESCRIPTION OF WORK

Persons appointed to these positions will perform professional work in planning, design and research in the field of architecture, including the design of buildings and other structures to fulfill esthetic and functional needs and the preparation of working or contract drawings and details of such designs. The work may include: Investigation and analysis of economic, social, physical, esthetic, and functional factors pertaining to architectural projects and building sites; preparation for contract architects of schematics, design, criteria, and other data; review of designs, working drawings, details, schedules, and specifications prepared by contract architects; development of plans for integrated projects involving the various buildings required for a complete operational facility such as laboratory, hospital, educational and industrial groups; preparation of project analysis charts, sketches, rendered perspectives, and other design representations; selection of materials and determination of exterior and interior color treatment and special decorative motifs; preparation of architectural working or contract drawings, including building-site plans, floor plans, elevations, sections, and miscellaneous scale details, in connection with buildings or groups of buildings; preparation of specifications and cost estimates; conduct of research leading to the development of model designs for specific types of buildings; preparation of standards and criteria for architectural details.

The difficulty of the work to be performed, the degree of supervision to which the employee is subject or which he exercises, and the responsibility assumed will be commensurate with the grade of the position.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Applicants are required to show progressively responsible professional experience in architecture in the amounts provided below for each grade level. The experience should have provided a broad and intimate practical knowledge of the practices followed in the application of the art and science of architecture, and must have been such as to clearly demonstrate that the applicants possess the technical competence required to resolve problems, to direct or coordinate architectural projects, or to conduct negotiations and contacts involved in professional work at the level for which eligibility is sought. Experience in Architectural Engineering will be acceptable if it meets the above criteria.

For any grade, the required amount and type of experience will not *in itself* be accepted as proof of qualification for a position. The applicant's record of experience and training must also clearly indicate that he possesses personal qualities, skills or abilities of the kinds listed below. An applicant need not show mastery of all of the qualities, skills, or abilities listed; however, all applicants will be evaluated to determine whether they have enough to perform the duties of the job and will be ranked on the degree to which they possess them. The ranking of applicants is not based on length of experience, but on an evaluation of the scope and quality of each applicant's experience, education, abilities, and personal characteristics.

Required abilities and personal characteristics

1. Ability to create architectural designs to meet problems present.
2. Ability to draft and sketch.
3. Inquisitiveness and ability to elicit information.
4. Analytical ability.
5. Ability to work with order and perseverance.
6. Ability to function under pressure such as time limitations or intense public interest.
7. Ability to write narrative reports on technical problems.
8. Willingness to accept responsiblity.
9. Ability to deal tactfully and diplomatically with others.
10. Ability to express himself orally.
11. Initiative (self-reliance or the ability to begin new undertakings).

BASIC REQUIREMENTS FOR ALL GRADES

Applicants must have successfully completed the basic requirements specified under A, B, or C below or they must have had any time-equivalent combination of A and C:

A. A course leading to a bachelor's degree with major study in architecture or architectural engineering at an accredited college or university; or

B. A State license to practice architecture; or

C. For each year short of graduation, a candidate lacking a State license or a degree must have 1 year of experience in an architect's office or in architectural work of such character and diversity as to be a satisfactory substitute for the required education. In the absence of college courses, 5 years of such experience is required. This experience must have demonstrated that the applicant has acquired a thorough knowledge of the fundamental principles and theories of professional architecture and that he possesses an understanding of the field of architecture comparable to that which would be acquired through successful completion of a course leading to a bachelor's degree in an accredited college or university with major study in architecture or architectural engineering.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, architecture.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS-11 Research positions.	Completion of all requirements for a master's or an equivalent degree based on at least 2 full academic years of graduate study when— a. The position involves primarily research or very similar research-type exploratory development of a creative planning or advanced scientific nature.

b. The knowledges required for the work are *typically and preferably* acquired through graduate study.
c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.

GS–12 Research positions. Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria:
a. The position involves primarily research or very similar research-type exploratory development of a creative planning or advanced scientific nature.
b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level.
c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

a. Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.
b. Successful completion of a 5- or 6-year program of study of at least 160 semester hours leading to a Bachelor of Architecture degree, in an accredited college or university, is qualifying at GS–7.
c. Candidates possessing a license to practice architecture from one of the State licensing boards using standards in compliance with the basic minimum provision recommended by the National Council of Architectural Registration Boards are recognized as meeting the full requirements for eligibility at GS–11. The requirements of the National Council of Architectural Registration Boards are recognized as the equivalent of the required degree and 3 years of experience.

SPECIAL EXPERIENCE

Some positions at GS–12 and above, because of the function or organizational structure of the agency in which they are located, require specialized knowledge in such areas as functional problems related to the design and construction of structures that serve particular purposes, for example, laboratories, hospitals, schools, or require specialized knowledges of design and construction procedures required or followed in particular areas of the world, or necessary to meet extreme climatic requirements such as are found in arctic or tropical areas; or require specialized knowledge of particular materials, techniques, or working procedures. In filling positions where it can be clearly shown that such specialized knowledge or experience would increase the likelihood of successful performance on the job, applicants possessing the necessary special experience and knowledge will be given preference in consideration.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

NONQUALIFYING EXPERIENCE

The following kinds of experience are not acceptable as professional architectural experience: Routine drafting or developing of plans where original investigations or designs are not involved; artistic, scientific, or technical illustrating activities in the drawing, inking, lettering, or coloring of photographs, maps, charts, posters, for purposes of publication, exhibition, or scientific record or identification; professional landscape architecture work consisting mainly of the layout, design, construction, or maintenance of land areas and landscape features, including ground and water forms, vegetation, roads, walks, incidental structures, and other landscape features; experience in the application of artistic embellishment to practical design, such as the decoration of interiors, including the construction, layout, and selection of furniture and furnishings that do not alter the basic architectural design of the interior; experience in city and community planning work that relates to the broad social and economic growth and development of such community services and facilities as industry, commerce, transportation, streets, utilities, and parks.

Engineering work not acceptable as professional architectural experience, includes the stress analyses and design of foundations and structural framing of concrete, timber, steel, and masonry structures; the inspection and field supervision of the construction of engineering structures; the design, fabrication, testing, operation, installation, or maintenance of electrical, mechanical, communications, heating, ventilating, sanitary, or related equipment.

BASIS OF RATING

Competitors will not be required to report for a written test but will be rated on a scale of 100 on the quality of their experience and training as it pertains to the knowledge, skill, and abilities important to the proper performance of the duties of a professional architect in the Federal service. This rating will be determined from an evaluation of their experience and training as outlined in their application forms and upon other information which may be secured by the Civil Service Commission. The quantity of experience will not, in itself, be accepted as proof of qualifications. It will be to the applicant's advantage to give a clear and complete description of any pertinent experience or training he may have gained, including types of projects on which he has worked.

CONFIDENTIAL INQUIRIES

Confidential inquiries will be made of persons who are qualified to evaluate the individual applicants for these positions as an additional means of determining whether such applicants possess the personal qualities and the technical abilities sought. References will be asked to evaluate candidates on the characteristics necessary for job success in these positions. Candidates will be rated ineligible where information is received which indicates that the applicant does not possess the necessary qualifications.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

GUIDES FOR APPRAISING CANDIDATES

Evaluating education in a related field of science or technology

Applicants with education in a related field of science or technology, in lieu of education or a degree in architecture or architectural engineering, will be evaluated by determining the extent to which the curriculum of the course pursued provides the candidate with those knowledges and abilities required for professional work in architecture. The value of such education will be assessed by comparing it with the curriculum of a school accredited by the National Architectural Accrediting Board.

Evaluation of experience as equivalent to a degree in architecture

A degree in architecture from an accredited

school indicates a broad educational background of general culture and technical training acquired in an atmosphere conducive to the development of a professional attitude, and a willingness to work to acquire additional knowledge of the profession and to develop to a higher degree the skills and abilities required for the full professional practice of architecture. When experience is substituted for education, it should in large part provide the equivalent background.

For upper level architectural positions the caliber of the professional work and reputation of the applicant in toto are a partial index to the acceptability of the experience submitted in lieu of education, since he could not have accomplished the work or acquired the reputation without adequate basic training equivalent to a degree in architecture.

For middle level positions the following considerations are appropriate:

(For convenience in this discussion we will analyze the background of 5 years of experience to be substituted for education. This pattern must not be considered as a rigid requirement permitting no deviation, but rather as an exposition of practical experience which will allow an individual to realize the goals stated in the first paragraph of this section, as the objectives of an education in architecture.)

—The first year should provide experience in architectural graphics, a knowledge of materials of construction, and of basic office procedure.

—The second, and the following 3 years should provide an offer of an ever-increasing opportunity for acquiring a varied background in, and appreciation of the theory of architectural design, and of project analysis and execution.

—The third year should provide an opportunity to gain experience in the preparation of simple architectural program requirements and routine correspondence, the use of materials and methods of construction, and knowledge of structural systems, including steel, reinforced concrete, and timber.

—The fourth year should provide a background in the mechanical and electrical equipment of buildings, and experience in the development of cost estimates and specifications.

—The fifth year should provide experience that places emphasis on the relationship of the structure to the site, land usage, and inspection procedures.

We believe that the occasions on which experience will have to be evaluated as a substitute for education will arise infrequently.

1. Most appointments at the entrance levels to the profession will be based on academic qualifications since persons with the required experience background in lieu of education will not be attracted by the entrance level salaries. Then, too, the Federal Government's needs are usually for experienced architects in the higher grade levels.

2. The more normal pattern for applicants for intermediate and higher level architectural positions who lack a degree will involve the substitution of State registration for the degree.

Therefore, the need to evaluate experience substituted for education should arise, relatively speaking, in only a very small percentage of the cases processed; for example, there may be some experienced architects who have completed only part of the course requirements for a degree in architecture and have been engaged continuously in professional work in some situation where registration was not required. However, since at present it is desirable to provide a means by which the relatively few well qualified architects who may not have a bachelor's degree in architecture can be admitted to the Government service, the substitution of experience for education has been provided in paragraph C of the basic requirement.

The sequence in which the experience is acquired may vary, and the time required to acquire the experience may extend over a chronological period well in excess of 5 years, so there can be no subetitute for judgment if we are to realize our basic objective which is to avoid the arbitrary exclusions of proven professional

architects from the Federal service. The extremes of a too rigid or too literal interpretation of the 5-year subetitution in paragraph C must be avoided. We should keep in mind that the experience being substituted must have demonstrated the applicant has acquired a thorough knowledge of the fundamental principles and theories of professional architecture and that he possesses an understanding of the field of architecture comparable to that which would be acquired through successful completion of a course leading to a bachelor's degree in an accredited college or university with major study in architecture or architectural engineering.

Considerations in establishing grade and quality levels

The following considerations are offered as guides in determining the level and quality of a candidate's professional architectural background:

1. In relation to the grade level and position applied for the total background and experience of the applicants should show the progressive use of the technical principles and architectural techniques.

2. The experience should have required the applicant to use initiative and judgment in choosing and using professional architectural principles. Qualifying experience should call for more than routine observation and recording of technical data. It should involve programs of such breadth and scope as to enable the candidate to advance in his profession, and to develop and mature his professional judgment.

3. Architecture impinges on all fields of human activity. The breadth of experience obtained in a position should be evaluated for its contribution to the architect's understanding of people and the way people work and live in buildings designed to serve particular functions. (See the introduction to the Classification Standard for the Architecture Series, GS–808.)

4. Architecture requires the melding together of technical and business knowledge, and architectural design sensitivity; experience which provides for this combination is valuable.

5. Work under the supervision of professional architects who could provide professional guidance and thus contribute to the professional development of the applicant is more valuable at the introductory levels.

6. In general, the applicant who has demonstrated more than a passing interest in the profession of architecture by furthering his professional development and augmenting his knowledge through extra-curricular training and study, or through seeking varied assignments should be recognized in the assignment of values.

7. Likewise, the incumbent who has achieved any distinctions in architectural competitions should be recognized.

8. In his experience, does he show that he has supervised or reviewed the work of others? (If so, credit should be given.)

9. Has his experience required him to deal with a variety of structures, materials, topographic, or climatic problems? (This is valuable and credit value should be assigned.)

10. Has he had public speaking or negotiating experience? (Normally the broader the range of experiences, the better equipped the candidate.)

11. Does the applicant's experience show an increasing independence of action and complexity and importance of assignments? (This represents progress and advancement in the profession.)

CONSTRUCTION CONTROL SERIES[1]

Construction Inspection Aid, GS–3/3

Construction Inspector, GS–4/9

Construction Representative, GS–9 and above

DESCRIPTION OF WORK

This occupation includes positions which involve on-site inspection of construction or the monitoring and control of construction operations. Positions in this occupation require application of (*a*) practical knowledge of engineering methods and techniques; (*b*) knowledge of construction practices, methods, techniques, costs, materials, and equipment; and (*c*) ability to read and interpret engineering and architectural plans and specifications.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Experience requirements

Candidates must have had experience as described below. (Education may be substituted for experience.)

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–2	½	0	½
GS–3	1	0	1
GS–4	1½	½	2
GS–5	2	1	3
GS–6	2	2	4
GS–7	2	3	5
GS–8 and above	2	4	6

General experience.—General experience is that which provided familiarity with construction work or which provided knowledges that would be helpful in developing skill in reading engineering drawings or specifications, making measurements, using test instruments, or in computing. The following are illustrative types of qualifying general experience:

—Apprentice or helper in a construction or maintenance trade.

—Operator of construction equipment.

—Rodman or chainman on a surveying crew.

—Draftsman or aid to an engineer or architect.

—Laboratory aid assisting in conducting tests or operating instruments.

Specialized experience.—Specialized experience is that which provided the following knowledges, skills, and abilities required for construction inspection or construction representative work:

a. Knowledge of a variety of trade and craft processes sufficiently broad to recognize acceptable construction practices;

b. Knowledge of general construction inspection practices and procedures;

c. Skill in using measuring tools and devices used in construction work;

d. Ability to read engineering drawings and specifications and, at higher levels, to interpret them for construction control purposes;

e. Knowledge of safety requirements and safety practices in construction work;

f. At the higher levels, ability to meet and deal with contractor's supervisory staff, subcontractors, and others involved in construction projects.

Illustrative examples of acceptable work experience:

a. Engineering aid or technician or surveying technician performing work directly related to construction;

b. Construction inspector or construction representative responsible for interpreting plans and specifications, inspecting materials and workmanship, insuring adherence to safety requirements, etc.;

c. Supervisor of craftsmen, equipment operators, mechanics, etc., engaged in construction work provided that the experience involved responsibility for interpreting plans and specifications and inspecting workmanship for adherence to such plans and specifications. Journeyman experience in a construction trade may be credited for not more than 2 years of specialized experience.

[1] This standard supersedes the standard for the Construction Inspection Series, GS–809, which was issued in November 1960.

d. Any other experience which provided the required knowledge and abilities to an equivalent extent.

Note: The wide range of kinds of qualifying experience, both general and specialized, results from the fact that the required knowledges, abilities, aptitudes, attitudes, and skills for these positions may be gained in a variety of work experience situations. It is these required knowledges, abilities, aptitudes, etc., that are important rather than experience in any one of the specific kinds of work listed above.

QUALITY AND LEVEL OF EXPERIENCE

For eligibility *at grade GS–4*, at least 6 months of the required specialized experience must have been comparable in difficulty and responsibility to the GS–3 level.

For eligibility *at grade GS–5*, at least 1 year of experience must have been comparable in difficulty and responsibility to the GS–4 level. At least 6 months of this experience at the GS–4 level must have been specialized experience.

For eligibility *at grades GS–6 through GS–11*, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade.

For eligibility *at grade GS–12*, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must demonstrate that he possesses the ability to perform the duties of the position.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Appropriate education may be substituted for the experience requirements as specified below:

GS–2: Completion of a senior high school curriculum or General Educational Development (GED) high school equivalency certificate may be substituted for the experience requirements for grade GS–2. High school education *or* GED high school equivalency certificate may not be substituted for any part of the experience requirements at GS–3 and above.

GS–3: One academic year (9 months) of appropriate post-high-school education may be substituted for 1 year of experience, and meets in full the experience requirements at the GS–3 level. This education must include at least 12 semester hours in one or a combination of courses such as the following: drafting, surveying, mathematics, physical science, industrial technology, industrial arts, or technical courses pertinent to construction or engineering technician work such as electricity, material testing, or engineering mechanics.

GS–4: Two years of post-high-school academic study which included at least 24 semester hours in any combination of the subjects as listed above for GS–3, may be substituted for 2 years of experience including ½ year of specialized experience. This meets in full the experience requirements at the GS–4 level.

GS–5: Completion of (*a*) the requirements for a bachelor's degree with major study in an appropriate field of engineering, construction, or industrial technology; or (*b*) 4 years of academic study which included at least 36 semester hours in any combination of the courses listed under GS–3 above, may be substituted for 3 years of experience including 1 year of specialized experience, and meets in full the experience requirements at the GS–5 level.

Appropriate education and training other than that outlined above, such as in manpower development programs or military training programs, will be granted credit on a month-for-month basis.

At any grade, appropriate post-high-school education or training may be partially substituted for required experience.

REQUIREMENT FOR WRITTEN TEST

For positions at GS–2 and GS–3, candidates must pass the written test of abilities necessary

to learn and perform the duties of these positions.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

BASIS OF RATING

Candidates for all positions will be rated on the quality and extent of experience, education, or training related to the duties of the positions. Ranking will be made on the following basis:

For GS–2 and GS–3: Scores on written test.

For GS–4 and above: An evaluation of experience, education, and training.

The information for evaluating experience, education, and training will be taken from the application form. Additional information may be obtained through reference inquiries to supervisors, teachers, and others.

INSERVICE PLACEMENT ACTIONS

Written test

The written test for GS–2 and GS–3 positions should be waived for inservice placement actions.

Credit for high school education

For inservice placement actions, high school education may be credited in accordance with the "add-on" rule, that is, the employee need show only that he has acquired the additional qualifications required for the new position. Thus, a high school graduate appointed at GS–2 needs 6 months of experience to qualify for a grade GS–3 position.

Waiving directly applicable specialized experience requirements at GS–4

For inservice placement actions only, the requirement for directly applicable specialized experience at grade GS–4 may be waived for lateral reassignment or promotion of employees in related technician positions, provided:

1. The candidate has had experience which has provided knowledge of the work of the position for which he is being considered; and,
2. A review of the candidate's experience and performance indicates that he possesses the necessary skills and abilities, and has definite potential for successful performance of the work.

SELECTIVE PLACEMENT

Some positions may require particular knowledges and skills. In such instances consideration may be limited to those candidates whose records show that they have the required knowledges and skills. For example, the candidate may be required to show specialized knowledge of particular mechanical or electrical systems.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for beginning level construction inspector positions need have only a basic knowledge of arithmetic and high school algebra; the ability to read and understand simple specifications and shop drawings; and the ability to learn inspection procedures.

Beyond the trainee levels, construction inspectors and representatives need to know and to be able to apply, in increasing measure, these knowledges, skills, and abilities:

—Knowledge of construction practices and techniques;
—Practical knowledge of engineering methods and techniques;
—Knowledge of one or more construction trades;
—Knowledge of algebra, geometry, and trigonometry;
—Knowledge of inspection practices and procedures;
—Knowledge of safety practices in the construction industry;
—Ability to read and interpret engineering and architectural plans, and specifications;
—Ability to inspect materials, workmanship, and the construction and installation of various systems;

—Ability to apply good judgment in the inspection situation;
—Ability to use testing instruments;
—Ability to use level and transit to check elevations;
—Ability to communicate effectively with the contractor, public officials, and user agency representatives;
—Ability to compute construction costs and to negotiate changes to the contract;
—Ability to prepare reports;
—Ability to monitor large construction projects to a successful and timely completion; and
—Ability to work effectively in stress situations.

Evaluation of education and experience

Evaluation of education and experience for both open-competitive and inservice placement actions logicaly includes the degree and scope of the candidate's knowledge, skills, and abilities which can be brought to bear upon duties of the position to be filled. There should be evidence that the candidate has the capability to perform satisfactorily in the area of specialization of the position. Such knowledge may have been obtained on the job or in training courses related to the work of the position. The evaluation of the knowledges thus obtained would depend upon the extent to which the duties and particular grade level of the position require them.

In ranking individuals, detailed facts about the position requirements need to be established. For a position which requires specialized knowledge and abilities, experience gained in the particular kind of work and in the same or a directly related field as the position to be filled should normally be ranked as highest quality. Experience in work which is similar to the duties of the position but in a less closely related field, or experience in work which is different from that of the position but in the same or closely related field, should be ranked at lower levels, or as nonqualifying, depending upon the extent of relatedness and needs of the position.

Curricula in Construction Technology

There is a large number of college-level programs leading to a 2-year associate degree or a 4-year bachelor's degree in construction technology or in closely related engineering or industrial technology.

The 4-year curricula in construction or engineering technology have generally evolved from 2- or 3-year technical institute programs in one of the branches of engineering technology. They are characterized by emphasis on basic mathematical, physical, and engineering sciences and their application to a portion of the spectrum of engineering activities. However, this training is not as extensive and intensive as that characterizing a professional engineering curriculum.

The Engineers' Council for Professional Development (ECPD) accredits curricula in Engineering Technology as well as curricula in Engineering. Accredited curricula in Engineering Technology are clearly identified as such and are not designed to prepare persons to perform professional work as engineers. The Council prepares annual listings of accredited programs in engineering technology and in engineering. (In ranking eligibles on the basis of completed education consideration should be given to whether the curriculum is accredited by ECPD.)

Methods of evaluation

Useful procedures for evaluating candidates for technician positions are described in appendix A to part II of this handbook, "Guide to Evaluation of Employees for Promotion." Several procedures are suggested in this material, one or more of which may be appropriate for the varied types of positions properly classified in this series.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 16. In addition, some positions require the ability to distinguish either basic or shades of colors. Applicants must possess emotional and mental stability.

**SURVEYING TECHNICIAN*
SERIES**

Surveying Aid, GS–1/3
Surveying Technician, GS–4/12

DESCRIPTION OF WORK

Surveying technicians apply knowledge of field surveying methods, techniques, and instruments in the measurement and location of lines, elevations, areas, angles, points, and contours of the earth's surface. The work includes:

—surveys for layout and control of construction;
—geodetic control surveys to provide reference points and lines for maps, charts, and other surveys;
—land surveys to determine or lay out property boundaries;
—surveys to gather data for use in design of structures and highways, in construction of maps and charts, and for other purposes.

Surveying duties frequently include physically demanding tasks such as prolonged walking with heavy packs of instruments and equipment, clearing timber and undergrowth, driving trucks over rough terrain, and climbing high towers.

EXPERIENCE, TRAINING AND RELATED REQUIREMENTS

Experience requirements

Candidates must have had experience as described below: (Education may be substituted for experience.)

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–1	0	0	0
GS–2	½	0	½
GS–3	1	0	1
GS–4	1½	½	2
GS–5	2	1	3
GS–6	2	2	4
GS–7	2	3	5
GS–8 and above	2	4	6

*This standard supersedes the standard for this series that was issued in December 1965.

General experience.—General experience is that which provided familiarity with surveying technician work or which provided knowledges and skills that would be helpful in developing skill in making measurements, using instruments, making calculations, compiling maps, descriptions, or similar aid or technician work. The following are examples of qualifying general experience:

—engineering aid;
—soil conservation aid;
—forestry aid;
—engineering draftsman;
—cartographic aid;
—construction inspection aid;
—apprentice training which included instruction in mathematics; optical, mechanical, or electronic equipment maintenance; precise measuring including related mathematics; or other work involving knowledges and skills related to those of surveying technicians.

Specialized experience.—Specialized experience is technical work which provided knowledges and skills needed for work in the type of surveying involved. It must have required the use of the pertinent instruments and techniques of surveying. Related occupations which may provide specialized experience include the following:

—Engineering Technician;
—Soil Conservation Technician;
—Construction Inspector.

QUALITY AND LEVEL OF EXPERIENCE

For grade GS–1, no experience, training, or education is required. No written test is required. Candidates must be interested in and willing to learn and perform surveying aid work and show evidence of likelihood of success in these assignments.

For grades GS–2 and GS–3, the general experience requirements do not require any specialized knowledge of surveying.

For grade GS–4, the 6 months of required specialized experience must have been compa-

rable in difficulty and responsibility to the GS–3 grade level.

For grade GS–5, at least 1 year of the required experience must have been comparable in difficulty and responsibility to the GS–4 grade level. At least 6 months of this experience at the GS–4 level must have been specialized experience.

For grades GS–6 through GS–11, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service.

For grades GS–12 and above, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must demonstrate that he possesses the ability to perform the duties of the position.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook will apply.

WRITTEN TESTS

Candidates for positions in grades GS–2 and GS–3 must take a written test of abilities necessary to learn the duties of surveying aid positions. However, the written test requirement may be waived for candidates who have successfully completed an intensive training program in surveying of at least 800 hours.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

GS–2: Graduation from a full 4-year or senior high school, or possession of a General Educational Development High School Equivalency Certificate, may be substituted in full for the experience requirements at the GS–2 level. (High school education, or the General Educational Development High School Equivalency Certificate, may not be substituted for any part of the experience requirements for GS–3 and above.)

GS–3: One academic year of appropriate post-high-school education may be substituted for 1 year of experience, and meets in full the experience requirements at the GS–3 level. This education must include a course in surveying, engineering, industrial technology, construction, physics, drafting, forestry, geography, navigation, cartography, physical science, or mathematics.

GS–4: Two years of post-high-school academic study which included at least *12* semester hours in any combination of the subjects as listed above for GS–3, provided the study included a course in surveying, may be substituted for 2 years of experience including ½ year of specialized experience. This meets in full the experience requirements at the GS–4 level.

GS–5: Successful completion of (*a*) a full 4-year course in a college or university leading to a bachelor's degree with major study in an appropriate field of surveying, engineering, construction, or industrial technology, or (*b*) 4 years of academic study which included at least *24* semester hours in any combination of the courses listed under GS–3 above, may be substituted for 3 years of experience including 1 year of specialized experience. For either (*a*) or (*b*) the study must have included a course in surveying. This meets in full the experience requirements at the GS–5 level.

An intensive training program in surveying of at least 800 hours will be accepted as qualifying for GS–2. Appropriate education and training other than that outlined above, such as in manpower development programs or military training programs, will be granted credit on a month-for-month basis.

At any grade, post-high-school education or training which is acceptable under these stand-

ards may be substituted for part of the required experience on a pro rata basis.

BASIS OF RATING

Competitors for all positions will be rated on the quality and extent of experience, education, or training in relationship to the duties of the positions. Ranking will be made on the following basis:

For GS-1: An evaluation of the candidate's willingness to do simple and repetitive surveying aid work to learn simple procedures; his dependability; and his ability to work safely.

For GS-2 and GS-3: Written test scores.

For GS-4 and above: An evaluation of experience, education and training in relationship to the duties of the position.

INSERVICE PLACEMENT ACTIONS

Written test

The written test required at GS-2 and GS-3 should be waived for inservice placement actions.

Credit for high school education

For inservice placement actions, high school education may be credited in accordance with the "add-on" rule, that is, the employee need show only that he has acquired the additional qualifications required for the new position. Thus, a high school graduate appointed at GS-2 needs 6 months of experience to qualify for a grade GS-3 position.

Waiving directly applicable specialized experience requirement at GS-4 and GS-5

For inservice placement actions only, the requirement for specialized experience for positions at grades GS-4 and GS-5 may be waived for lateral reassignment of employees in related technician occupations provided:

1. The candidate has had experience which has provided knowledge of the work of the position for which he is being considered; and
2. A review of the candidate's experience and performance indicates that he possesses the necessary skills and abilities, and evidences definite potential for successful performance of the work.

Accepting experience in other occupations as specialized experience

Some surveying technician positions are mixed positions in that they include duties that characterize other occupations or specializations. For inservice placement actions to such positions, experience that is qualifying for the other occupation may be accepted as specialized experience, provided the candidate's total record of experience, education, and training demonstrates the ability to perform the work of the position to be filled. For example, experience as a cartographic technician may be accepted as specialized experience for a surveying technician position that includes, to a substantial degree, cartographic technician duties.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for beginning level surveying aid positions should have the ability to use high school level mathematics, the ability to read and understand simple instructions and procedures, the ability to learn surveying aid duties, the ability to work as a member of a team, and the willingness to work, as required, in remote areas for long periods.

At the higher levels, surveying technicians need to know and be able to apply, or possess, knowledges, skills, and abilities such as the following:

1. Knowledge and ability to use appropriately advanced surveying mathematics.
2. Knowledge and competence in the use of complex optical and electronic instruments, equipment, and systems.
3. Knowledge of and experienced judgment in selecting from varied complex survey methods.
4. Ability to meet, deal, and maintain friendly relations with property owners and community officials, to gain access to

property or to collect historical or legal data.

5. Ability to lead a group, maintain work pace, maintain discipline, insure upkeep of supplies and equipment, and to train individuals in surveying practices.

Evaluation of education and experience

Evaluation of education and experience for both open-competitive and inservice placement actions logically includes the degree and scope of the candidate's knowledge, skills, and abilities which can be brought to bear upon duties of the position to be filled; or in the type of surveying involved in the position. Such knowledge and abilities may have been obtained on the job and/or in courses related to the work of the position.

In ranking individuals, detailed facts about the position requirements need to be established. For a position which requires specialized knowledge and abilities, experience gained in the particular kind of surveying (e.g., construction, geodetic, land) involved in the position to be filled should normally be ranked as highest quality. Experience in work which is similar to the duties of the position but in a less closely related specialty area or occupation generally should be ranked at lower levels.

Methods of evaluation

Useful procedures for evaluating candidates for technician positions are described in FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement. Several procedures, including job element rating, are suggested in this material. One or more of them may be appropriate for the types of positions classified in this series.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 13. In addition, applicants must be able to distinguish basic colors and must possess emotional and mental stability.

ENGINEERING DRAFTING SERIES*

Engineering Draftsman GS-1/9

DESCRIPTION OF WORK

Engineering drafting is a support occupation for both engineering and architecture. From models, photographs, sketches, and verbal descriptions and specifications, draftsmen portray engineering and architectural ideas and information through drawings. These drawings are used to:

—Delineate engineering and architectural ideas and information for patents, reports and publications;
—Document the existence and location of public and military facilities and equipment;
—Supply the essential information needed to fabricate, construct, assemble, maintain, repair, install, and procure equipment and facilities;
—Study the feasibility of new engineering or architectural proposals.

EXPERIENCE REQUIREMENTS

Candidates must have had experience as described below (or the appropriate education substitution).

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-1	0	0	0
GS-2	½	0	½
GS-3	1	0	1
GS-4	1½	½	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5
GS-8 and above	2	4	6

General experience

General experience is that which provided some knowledge and understanding of engineering drawing that would be helpful in developing skill in preparing engineering drawings. The following are examples of work that meet the general experience requirements:

—engineering or office draftsman;
—cartographic aid or technician;
—helper, apprentice, or journeyman in skilled and mechanical trades that required the interpretation of engineering drawings, blueprints, or schematic diagrams;
—aid to an engineer, architect, surveyor, or scientist that required reading or following engineering drawings.

Specialized experience

Specialized experience is that which has provided the candidate with all of the following:

—ability to prepare engineering or architectural drawings that are neat, accurate, and logically arranged, utilizing the methods and techniques of drafting;
—ability to make mathematical computations using standardized tables and formulas;
—knowledge of the symbols and terminology used in engineering drawing; and
—ability to prepare the kinds of drawings at the level of difficulty and responsibility of the position to be filled.

QUALITY AND LEVEL OF COMPETENCE

For grade GS-1, no specific experience, training, or education is required. No written test is required. Candidates must show evidence of likely success in the occupation and be interested in and willing to learn how to prepare engineering drawings.

For grades GS-2 and GS-3, the general experience requirements are broad in intent and do not include any specialized skill in engineering drafting.

For eligibility at grade GS-4, the 6 months of required specialized experience must have been comparable in difficulty and responsibility to the GS-3 level.

For eligibility at grade GS-5, at least 1 year of the required experience must have been comparable in difficulty and responsibility to the GS-4 level. At least 6 months of this experience

*This standard supersedes the standard for this series that was issued in December 1965.

at the GS–4 level must have been specialized experience.

For eligibility at grades GS–6 through GS–9, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must demonstrate that he possesses the ability to perform the duties of the position.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

GS–2: Graduation from a full 4-year or senior high school, or possession of a General Educational Development High School Equivalency Certificate, may be substituted in full for the experience requirements at the GS–2 level. (High school education, or the General Educational Development High School Equivalency Certificate, may not be substituted for any part of the experience requirements for GS–3 and above.)

GS–3: Successful completion of 1 academic year of post-high school education that included a course in engineering, engineering or industrial technology, construction, drafting, surveying, physical science, or mathematics may be substituted for 1 year of experience and meets in full the experience requirements for GS–3.

GS–4: Successful completion of 2 years of post-high school academic study which included at least 18 semester hours in any combination of courses as listed above for GS–3 may be substituted for 2 years of experience including one-half year of specialized experience, provided that at least 3 semester hours are in drafting. This meets in full the experience requirements at the GS–4 level.

GS–5: Successful completion of 4 years of post-high school academic study which included at least 27 semester hours in any combination of courses listed under GS–3 above may be substituted for 3 years of experience including 1 year of specialized experience. At least 6 semester hours must be in drafting. This meets in full the experience requirements at the GS–5 level.

An intensive training program in drafting of at least 800 hours will be accepted as qualifying for GS–2.

Appropriate education and training other than that outlined above, such as in manpower development programs or military training programs, will be granted credit on a month-for-month basis.

At any grade, post-high school education or training that is acceptable under these standards may be substituted for part of the required experience on a pro rata basis.

WRITTEN TESTS

Candidates for positions in grades GS–2 and GS–3 must pass a written test of abilities necessary to learn the duties of engineering drafting positions. The written test may be waived for candidates whose education and training included the equivalent of a specialized training program in drafting of at least 800 hours. A specialized drafting program would normally include instruction in drafting methods and techniques; accepted drafting standards; mathematics; shop, engineering, or architec-

tural technology; and practical experience in drafting.

SELECTIVE PLACEMENT

Some positions require particular knowledges or skills, e.g., in a specialty field of drafting. For these positions, consideration may be limited to those candidates who have the required knowledges and skills.

DRAFTING SAMPLES (OPTIONAL)

Candidates for positions in grades GS–4 and above may be required to submit drafting samples. These samples should indicate a knowledge of drafting principles, techniques, and practices, as well as skill and proficiency in actually preparing drawings, to a degree consistent with the duties of the position. Candidates should be encouraged to prepare samples that will do full justice to their abilities.

Samples must meet the following criteria:

—They must be original drawings; or tracings or prints of original drawings, the same size as the original, not reduced.

—They must include, or be supplemented by, examples of freehand lettering.

—Candidates must sign all samples. Above the candidate's signature, there must be a statement that all drafting was performed by the candidate, or, in case he did not do all the work on the sheet, a statement clearly indicating the nature and extent of his own work on the sample.

ALTERNATE STANDARD FOR GRADES GS–4 AND ABOVE

An alternate standard may also be used by the construction of an examination (for either competitive or inservice placement actions) based upon the job-element approach.

Job Elements

The following knowledges, skills, and abilities may be used in constructing a job-element examination for GS–4 and above:

—the ability to prepare engineering drawings from sketches, verbal descriptions and specifications;

—skill in using the instruments and equipment and applying the practices and techniques of drafting to produce neat, well-balanced drawings;

—ability to work with design originators (engineers, architects, technicians, and scientists);

—ability to make standardized mathematical computation using trigonometric and engineering tables and formulas;

—knowledge of standard hardware items and of engineering or architectural practices.

The elements should be adapted, and, as necessary, new elements added, according to the duties of the position to be filled.

The rating schedule should be so constructed as to be consistent with the general pattern of requirements in the basic standard. For example, the knowledges, skills, and abilities qualifying for grade GS–4 should represent those attained through 2 years of appropriate experience or post-high school academic study as described in the basic standard for GS–4. The grade-level criteria in the classification standard will be helpful for this purpose.

Job Element Rating

The Job Qualification System for Trades and Labor Occupations (Handbook X–118C, May 1969) discusses the job-element procedures and techniques to be used in obtaining information from applicants and measuring their qualifications. That material should be adapted for use for this occupation. For positions to be filled through inservice placement, the procedures and questions to be asked of candidates should be tailored to the requirements of the specific position and the labor market. The material on pages 21 through 29, "Rating for Inservice Placement," of the *Internal Qualification Guides for Trades and Labor Jobs* will be especially helpful.

BASIS OF RATING

Competitors for all positions will be rated on the quality and extent of experience, education, or training in relationship to the duties of the

positions. Ranking will be made on the following basis:

For GS-1: An evaluation of the candidate's willingness and ability to learn to utilize the equipment, methods, and techniques of drafting to prepare simple engineering drawings, and his dependability.

For GS-2 and 3: Written test scores.

For GS-4 and above: An evaluation of experience, education, training, and, where required, drafting samples in relation to the duties of the position.

INSERVICE PLACEMENT ACTIONS

Written test

The written test required at GS-2 and GS-3 should be waived for inservice placement actions.

Credit for high school education

For inservice placement actions, high school education may be credited in accordance with the "add-on" rule; that is, the employee need show only that he has acquired the additional qualifications required for the new position. Thus, a high school graduate appointed at GS-2 needs 6 months of experience to qualify for a grade GS-3 position.

Waiving directly applicable specialized experience requirement at GS-4 and GS-5

For inservice placement actions only, the requirement for 6 months of specialized experience at GS-4 and 1 year of specialized experience at GS-5 may be waived for lateral reassignment of employees in related technician or trades occupations provided:

1. the candidate has had experience which has provided knowledge of the work of the position for which he is being considered; and
2. a review of the candidate's experience and performance indicates that he possesses the necessary skills and abilities, and evidences definite potential for successful performance of the work.

Drafting samples may be valuable when evaluating the drafting ability of candidates for whom specialized experience requirements have been waived.

GUIDE FOR EVALUATION OF CANDIDATES

Grade GS-1

Candidates for positions at GS-1 are not required to meet any education, experience, or test requirements. They must, however, "show evidence of likely success in the occupation." To be successful in the engineering drafting occupation, candidates should be literate.

Grades GS-2 and GS-3

Candidates for beginning level engineering drafting positions must have from 6 months to 1 year of general experience or the appropriate education substitution. They should have the ability to use high school level mathematics, read and understand simple instructions and procedures, and the ability to learn to prepare engineering or architectural drawings. For candidates with no experience or training in drafting, demonstration of ability to copy or trace simple drawings and legibility in printing may be helpful in evaluating the potential of candidates. Although not required, successful completion of courses in drafting, mathematics, physical science, and engineering or architectural technology are especially valuable. Candidates who (1) have completed programs specifically designed to train draftsmen or (2) have had experience in the engineering drafting field may be considered superior at these levels.

Grades GS-4 and above

Candidates for positions at GS-4 and above, where specialized experience or the appropriate education substitution is required, should be evaluated according to the degree and scope to which their knowledges and skill can be brought to bear upon the duties of the position to be filled. Such knowledges and skills may have been obtained on the job or in courses related to the work of the position. The knowledges and

skills listed as job elements in the alternate standard should be considered.

Because of the variations in jobs at GS–4 and above, in ranking candidates, detailed facts about the position need to be established. Knowledges and skills that are determined to be essential to perform the duties of the position should be identified, and candidates should be ranked based upon the degree to which they possess these selective factors.

Candidates may be required to demonstrate their ability by preparing drawings as instructed by the selecting official or they may submit samples of their work.

Methods of Evaluation

Other useful information for evaluating candidates may be found in FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement. Several evaluation procedures, including job-element rating, are suggested in this material. One or more of them may be appropriate for the types of positions classified in this series.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2.

CONSTRUCTION ANALYST SERIES

Construction Analyst GS–5/13

DESCRIPTION OF WORK

Persons appointed to these positions will perform technical work in analyzing drawings and specifications submitted with applications for federally insured mortgages for compliance with standards with respect to design, planning, structural, and mechanical features; preparing cost estimates; correcting drawings and specifications; proposing changes and improvements; preparing reports; and collecting data and developing area construction cost indexes.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Except for the substitution of education for experience provided for below, applicants must show that they have had, as a minimum, general and specialized experience of the type and the quality described below and in the amount indicated in the following table for the grades of positions for which they are applying.

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-5	3	0	3
GS-7	3	1	4
GS-9	3	2	5
GS-11/13	3	3	6

General experience

Applicants must show that they have had experience in positions the duties of which require reading and interpreting working drawings of buildings, or other comparable engineering or architectural structures, and other duties directly related to architecture, construction, civil, mechanical, and electrical engineering. This work should be of such a nature as to have provided a background knowledge of construction including material estimating, cost estimating, work planning, construction work methods, inspection, quality control on materials and workmanship, and safety procedures.

Specialized experience

Applicants must have had successful and progressively responsible technical experience on residential or other building construction providing a practical knowledge of the design, construction, and maintenance of brick, frame, structural steel, reinforced concrete, and other type structures. The experience should have provided the ability to analyze and correct drawings and specifications and to make recommendations with respect to design, plan arrangement and structural features; to analyze structures and facilities for maintenance needs, to do work planning, and to make cost and material estimates; and to perform surveillance inspections for insuring compliance with standards. The experience should also have provided a knowledge of the construction of appurtenances and adjuncts, such as water and sewer systems, streets, etc.

The required specialized experience may have been obtained in one or a combination of the following types of activities:

1. Experience as an architect or as an employee of an architect with responsibility for planning, designing, preparing working drawing and specifications, and letting contracts;
2. Experience in the construction industry analyzing and correcting drawings and specifications with respect to design, plan, arrangement and structural features; or preparing quantity and cost estimates; or otherwise applying technical principles and practices to construction plans;
3. Experience in building, structural designing, construction supervision, or other technical work which has included calculating the extent of necessary repairs and alterations, estimating their costs, reviewing recommendations and estimates prepared by others, or any combination of these functions.

In addition to the above requirements the applicant's experience must have demonstrated his ability to meet and deal satisfactorily with

the public and particularly with contractors, builders, and others in the construction field.

Examples of nonqualifying experience

The following kinds of experience are not acceptable as general or specialized experience: journeyman or foreman carpenter, mason, electrician, plumber, etc.; operating engineer; surveyor-computer; operator of mobile construction equipment; speculative builder or promoter with experience involving little or no actual architectural and construction work; real estate salesman and appraiser; or similar types of experience.

Quality of experience

Eligibility in any grade will be based upon a clear showing that the applicant has had experience of a scope and quality sufficient to give him the ability to handle technical or managerial assignments commensurate with the duties of the grade. For any grade, length of experience beyond the required minimum is less important than demonstrated success in performing duties of a responsible nature.

For each grade GS–7 through GS–11, at least 6 months of specialized experience must have been at a level of difficulty and responsibility comparable to that of the next lower grade in the Federal service, or 1 year of such experience comparable to the second lower grade. For grades GS–12 and above, at least 1 year of specialized experience must have been at a level comparable to the next lower grade.

Supervisory positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

Substitution of education for experience

Education successfully completed in a resident college or university which included an average of 6 semester hours a year in architecture, engineering, building construction or similar pertinent subjects, may be substituted for general experience at the rate of 1 academic year of study for 9 months of experience, up to a maximum of 4 years of study for 3 years of general experience.

BASIS OF RATING

Competitors will not be required to report for a written test, but will be rated on a scale of 100, on the extent and quality of their experience, training, and personal qualifications relevant to the duties of the position. Such ratings will be based on the competitors' statements in their applications and upon any additional evidence secured by the Commission.

GUIDE FOR APPRAISING CANDIDATES

1. Construction is a very broad field of endeavor. For this occupation, candidates should have a practical knowledge of construction related to buildings and appurtenant structures. Candidates should have had some experience in the preparation or review of plans, specifications, or estimates of materials and costs for the construction, extension, alteration or repair of buildings.

2. Virtually all construction analyst positions are found in Federal agencies responsible for underwriting mortgage loans on housing. Therefore, emphasis should be placed on knowledge of the residential construction field.

3. Employment records should be carefully reviewed and considered to determine the extent and degree to which the applicant has worked with architects and engineers in the development of plans and specifications and the solu-

tion of technical problems. Experience as a contractor or as a draftsman in an architectural engineering firm may well provide such experience. (In considering drafting, however, the experience should be other than routine drafting in a mass-production operation, which would provide little opportunity for an interchange of ideas and concepts with professionally trained men. The experience must have offered the draftsman an opportunity to acquire technical knowledge and an appreciation for good design and construction.)

4. The applicant's record should show experience beyond the recording of routine technical data in a systematized and unvarying operation, which would offer little opportunity for advancement and developments in technical know-how. The more valuable experience should have provided opportunities for developing the ability to work independently with problems of a varying nature.

5. The general work record of the applicant should be analyzed. The applicant should have been exposed to assignments which would require successful contact and negotiation work with others in the building construction field, with actual experience in negotiation being given heavier weight. Experience which has been diverse insofar as materials of construction (brick, lumber, reinforced concrete, steel) and types of structures (housing, single-family dwellings and multifamily apartment units, and industrial and commercial structures) are concerned is superior to experience with one type of construction. Additional credit should be given the applicant if he is familiar with the problems to be considered in planning a subdivision, or laying out traffic flow in a multifamily apartment structure or working out specifications problems in plans. Employment in positions that have given the applicant an opportunity to learn pricing patterns and construction cost factors of the industry is especially valuable for these positions.

6. Some of the attributes that make for differences in performance of this technical work are willingness to accept responsibility; the ability to make a decision; the ability to explain programs to others; initiative; and analytical ability. These are personal characteristics which should be considered for assignment of collateral value.

7. Actual experience is the main avenue for acquiring an understanding of the sequence of operations in the residential construction field. This knowledge of sequence in the construction field is very important to an understanding of good construction and cost elements in construction, for many operations depend upon those that preceded and facilitate those that follow. The ability to understand this sequence fully is needed if the construction analyst is to deal with new situations successfully.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 15. In addition, applicants must possess emotional and mental stability.

ELECTRONICS TECHNICIAN SERIES

Electronics Technician GS–4/12

STATEMENT OF DUTIES

Electronics technicians perform maintenance, troubleshooting, testing, operation, or development work in connection with all kinds of electronic equipment. Electronic equipment ranges from medical and laboratory equipment through radar, sonar, telemetry, and radio systems to computers. Electronics technicians have a knowledge of basic electrical and electronic theory, algebra and elementary physics, as well as the ability to use their hands and appropriate tools.

EXPERIENCE, TRAINING, AND OTHER REQUIREMENTS

Experience requirements

Candidates must meet the experience requirements specified below. (Successfully completed education of acceptable type, quality, and duration may be substituted for experience.)

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–4	1½	½	2
GS–5	2	1	3
GS–6	2	2	4
GS–7	2	3	5
GS–8 and above	2	4	6

General experience.—Progressively responsible technical or craft experience in electronics, electricity, engineering, communications, physics, or in a similar field that provided technical knowledge and background that could be applied in the development, testing, evaluation, design, standardization, research on, maintenance, or installation of electronic systems and equipment.

Specialized experience.—Experience as a technician, instructor, inspector, or mechanic (civilian or military) which shows progression in theoretical and practical knowledge of electronic theory and of characteristics, function, operation, and capabilities of a variety of types of electronic equipment. This experience must have included the use of schematic diagrams, a variety of test equipment, and the application of appropriate electronic formulas involved in such duties as testing, troubleshooting, modifying, designing, calibrating, installing, maintaining, repairing, constructing, developing, instructing on electronic equipment, or similar functions.

Also qualifying is experience in developing policies, standards, and procedures for maintenance, installation, or similar functions provided the work clearly shows that the applicant applied a specialized knowledge of the theories and principles of a variety of electronic systems or equipment.

Experience doing bench repair of television and radio receivers in a commercial shop in which the applicant did troubleshooting on a variety of equipment made by three or more manufacturers and used such special test equipment as sweep generators, marker generators, oscilloscopes, and others normally employed in such servicing will be acceptable as specialized experience which is equivalent to the GS–5 grade level and fully qualifying for positions as GS–6 and below only.

Supervisory positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

MOTOR VEHICLE OPERATOR QUALIFICATIONS

For those positions requiring technicians to drive Government-owned vehicles in the performance of their duties, applicants will be required to pass a practical road test driving the appropriate size and type of vehicle. Also, applicants cannot be permitted to operate Government-owned vehicles unless they possess a valid State driver's permit. They may be required to have such a permit or to obtain one within 30 days after entry on duty.

QUALITY OF EXPERIENCE

For eligibility at grade GS–4, candidates must have had at least 6 months of specialized

experience comparable in level of difficulty to grade GS–3.

For eligibility at grade GS–5, applicants must have had at least 1 year of experience comparable in difficulty and responsibility to grade GS–4, of which at least 6 months must have been specialized experience.

For eligibility at GS–6 and above candidates must have had at least 1 year of specialized experience comparable in difficulty and responsibility to the next lower grade under the Classification Act or 2 years of specialized experience comparable to the second lower grade under the Classification Act. Specialized experience acceptable for GS–6 and above must have been characterized by progression in difficulty and responsibility or variety or must have been supplemented by academic study so that there is substantial development of the candidate's knowledge and ability. Routine performance of repetitive duties without evidence of such growth and development may be accepted for not more than 3 months of specialized experience.

For positions at GS–9 and above, at least 1 year of the specialized experience must be directly related to the duties of the position to be filled. Placement of technicians in positions at GS–9 and above, either through selective certification or noncompetitive action, must be predicated upon (1) a detailed job analysis of the knowledges, abilities, and skills required for the work, and (2) an itemized matching of the candidate's knowledges, abilities, and skills sufficient to assure satisfactory performance.

In evaluating the quality of specialized experience consideration should be given to in-service training courses, correspondence courses, specialized courses offered by equipment manufacturers, university extension courses, etc.

EXTRA CREDIT FOR OUTSTANDING COMPETENCE (OPTIONAL PROVISION)

For positions at GS–9 and above, candidates who show positive evidence of outstanding competence and exceptional accomplishment may be rated eligible for the next higher grade than that for which they would otherwise qualify on the basis of the standard requirements of education and experience. Such candidates must demonstrate (*a*) outstanding competence based on a combination of factors such as subject-matter knowledge, creativity, specialized skills, progression of experience, and continuing growth through academic study; (*b*) a record of accomplishment which is recognized in the professional and technical community as exceptional and is marked by awards, published papers, citations, patents, or similar evidence; (*c*) proven ability to perform fully the work of the position to be filled; and (*d*) that they are clearly outstanding with respect to candidates with comparable backgrounds of experience and training. [*Note:* This provision for an extra grade (in this and in other technician standards) is intended to be used rarely and each such case should be fully documented. The Civil Service Commission's Standards Division would appreciate receiving a brief summary of each such case.]

EVALUATING EXPERIENCE GAINED IN POSITIONS NOT SUBJECT TO THE CLASSIFICATION ACT

Some candidates will have had experience acquired either in non-Federal positions in military service, as an amateur, or in Federal positions compensated under a prevailing wage system. Many such positions require skill and knowledge characteristic of Classification Act jobs, and involve the performance of duties characteristic of Electronics Technician positions in the GS–856 Series. Evaluation of such experience should be based upon the individual circumstances surrounding each case. Such experience should be analyzed in terms of the knowledges, skills and abilities required and then compared with the knowledges, skills and abilities described at the different Classification Act grade levels described in the classification standard for the Electronics Technician Series, GS–856.

(TS 97)
March 1968
Reprinted without change
December 1975 (TS 156)

ELECTRONICS TECHNICIAN SERIES

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Post high school education.—Successful completion of post high school education (at an accredited college, junior college, or technical institute*) that included or was supplemented by an average of at least 12 semester hours per year in engineering, physical science, technology, or mathematics which included at least 6 semester hours in electronics may be substituted as follows:

A. Two academic years of such study may be substituted in full for the experience requirements at the GS–4 level;

B. Three academic years of such study in an ECPD accredited technical institute curriculum in electronics may be substituted in full for the experience requirements at the GS–5 level;

C. Successful completion of all the requirements for the bachelor's degree in electrical or electronics engineering may be substituted in full for the experience requirements at the GS–5 level;

D. In rating combinations of experience and training, such study may be substituted for general or specialized experience at the rate of 1 academic year for 9 months of experience. Such education may not be substituted for more than 6 months of specialized experience unless it satisfies B or C above.

E. One academic year, or longer, of successfully completed graduate level training in electronics may be substituted for 1 year of the specialized experience required for positions at the GS–6 level.

Education and training other than that outlined above, e.g., in manpower development programs or military training programs will be allowed credit, depending upon its applicability and extent.

*An accredited technical institute is one which is currently accredited by the Engineers' Council for Professional Development.

ALTERNATE STANDARD

An alternate standard may also be used by the construction of an examination (for either competitive or noncompetitive actions) based upon the job-element approach.

If such an examination is to be used, the rating schedule should be so constructed that the knowledges, skills, and abilities qualifying for grade GS–4 should represent those attained through completion of a 2-year course in electronics at an accredited technical institute.

The following elements common to the electronics technician occupation may be used in constructing a job-element examination. Greatest weight should typically be given to those elements representing the theoretical and quasi-engineering knowledges. The use of tools, mechanical ability, and trades knowledges, while basic to electronics technician work, are not paramount requirements and should be less heavily weighted.

Job elements

Mathematics through trigonometry
Communication and Radio Theory and Techniques
Radar Theory
Sonar Theory
Computer Theory and Logic
Television Theory
Troubleshooting and Circuit Analysis
Theory and Use of Electronic Test Equipment
Mechanical Skills

Job-element rating

While developed principally for prevailing wage electronic mechanics types of positions, the material in X–118C will serve as a basic and valuable guide to rating these job elements in terms of Classification Act requirements. There will, of course, be modification since there typically is a greater emphasis on theoretical knowledges and quasi-engineering skills.

EVIDENCES OF REQUIRED KNOWLEDGE

Information about the electronic equipment, components, subsystems and systems with which

the candidate has worked provides valuable evidence of his knowledges, skills, and abilities. This evidence is gained through an analysis of the basic job elements required by the kind of work performed by the candidate on the equipment involved. While experience in maintaining a specific radar equipment is clearly qualifying for the maintenance of similar equipment, experience in installing and testing certain kinds of telemetry equipment may also afford theoretical knowledge and skills directly applicable to that radar equipment.

BASIS OF RATING

Candidates for all positions will be rated on a scale of 100. The basis of rating will be an evaluation of experience and training. Candidates must present evidence of ability to discharge the duties of the position applied for. The information for evaluating experience and training will be taken from the application form, and any additional information which the examining office may wish to obtain through confidential inquiries to supervisors, teachers, and other references. In conducting the evaluation, attention should be given to factors such as: *Assignments:* type, variety, relative difficulty, progression; *Work Output:* productivity (quantity), acceptability (quality), freedom from error, ability to learn from errors; *Interest and attitude:* career objectives, participation in training activities, self-improvement activities, work attitude, acceptance of criticism, etc.

SELECTIVE CERTIFICATION

Some positions may require possession of special licenses or certificates of proficiency, satisfactory completion of specialized training courses, or evidence that the candidate has had training or experience in performing specific kinds of work on specific types of electronics equipment.

Selective certification may be used to assure that only candidates with the appropriate experience, training, or other qualifications, are considered.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 15; in addition, applicants must be able to distinguish shades of colors, and must possess emotional and mental stability.

INDUSTRIAL ENGINEERING TECHNICIAN SERIES

Industrial Engineering Technician GS-4/12

DESCRIPTION OF WORK

Industrial engineering technicians conduct studies of work systems for the purpose of finding the most efficient and economical methods for producing a product or for repairing government equipment. Studies encompass the three basic elements of production, that is, men, materials, and equipment. Most technicians specialize in a limited phase of industrial engineering work and perform duties in (1) establishing and maintaining engineered time standards; (2) developing new or improved work standards; or (3) developing layout designs for work stations.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Experience requirements

Candidates must meet the experience requirements specified below. (Successfully completed education of acceptable type, quality, and duration may be substituted for experience.)

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-4	1½	½	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5
GS-8 and above	2	4	6

General experience: Experience which provided one or more of the following: (1) Practical knowledge of general engineering principles and techniques in any field of engineering; (2) practical knowledge of the work processes used in a trade or craft; (3) ability to read and interpret engineering drawings; (4) practical knowledge of activities allied to production of a product or provision of a service, such as, work planning and scheduling, quality control, equipment design and maintenance, work inspection, materials handling, etc.; or (5) knowledge of the principles and techniques used in industrial or office management studies relating to work measurement, methods improvement, and layout design of work stations.

Qualifying general experience can be obtained in assignments such as these:

a. Engineering or physical science aid and technician experience.
b. Apprentice, journeyman, or supervisory trade and craft experience.
c. Shop-oriented experience as a production control specialist, an equipment specialist, or an inspector.
d. Experience in conducting work measurement, methods improvement, layout design, or similar studies.

Specialized experience: Nonprofessional technical or supervisory experience which provided knowledge of the principles and techniques of industrial engineering or industrial management such as the following: work measurement, simplification, and standardization; methods analysis and improvement; analysis and design of work center facilities and equipment; or planning and control of industrial operations.

Apprentice, journeyman, and supervisory trades and craft experience which provided intensive knowledge of engineering principles, techniques, methods, and precedents and broad and intensive knowledge of industrial operations may be credited for specialized experience. In so doing, it is not sufficient to simply equate wage board functional job titles and pay rates to grade levels under the Classification Act. Rather, the work background of the candidate must be reviewed to determine the degree to which the required basic knowledges, skills, and abilities are possessed.

For positions at GS-9 and above, specialized experience must have included at least 1 year of experience in actually applying the principles and techniques of industrial engineering, as in establishing engineered time standards,

conducting methods improvement studies, and designing work station layouts.

LEVEL OF EXPERIENCE

For eligibility at *grade GS-4*, the required 6 months of specialized experience must have been comparable in difficulty and responsibility to the GS-3 level in the Federal service.

For eligibility at *grade GS-5*, at least 1 year of the required experience, including 6 months of specialized experience, must have been comparable in difficulty and responsibility to the GS-4 level.

For eligibility *at grades GS-6 through GS-11*, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service. For eligibility *at GS-12*, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the GS-11 level in the Federal service.

QUALITY OF EXPERIENCE

For positions at GS-5 and above, the education and/or experience must have demonstrated the following knowledges, abilities, and skills:

—Practical knowledge of engineering principles and industrial work processes and techniques used in the manufacture, assembly, testing, and/or overhaul and repair of equipment;
—Knowledge of high school algebra and geometry;
—Ability to read and interpret engineering drawings and technical publications;
—Ability to work independently with little supervisory assistance;
—Ability to get along well with others on the job;
—Ability to organize factual data in a systematic and logical manner;
—Ability to learn to apply the principles and techniques of industrial engineering.

For positions at GS-7 and above, the education and experience must have demonstrated, in addition to the foregoing, proportionately greater knowledge of industrial engineering and increased skills and abilities such as the following:

—Skill in planning, scheduling, and executing industrial engineering assignments, with a minimum of supervision;
—Skill in visualizing the logical and necessary steps in the manufacture, assembly, testing, and/or repair of equipment, or in providing a service;
—Creativity and resourcefulness in finding new and better ways to accomplish work effort;
—Tact, persuasiveness, and skill in human relations in gaining cooperation, information, and acceptance for controversial recommendations;
—Ability to function effectively under pressure.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must demonstrate conclusively that he possesses the ability to perform the duties of the position.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

★Each successfully completed year of study in an accredited resident school above the high school level, which included or was supplemented by at least 12 semester hours in any combination of engineering, technology, industrial management, industrial relations, public or business administration, mathematics, statistics, physical science, psychology, or vocational education courses may be substituted for 1 year of experience, on the following basis:

a. Two academic years of study may be substituted in full for the 2 years of general and specialized experience required at the GS-4 level.
b. Completion of all requirements for the bachelor's degree may be substituted in full for the 3 years of general and specialized experience required at the GS-5 level.

Appropriate education and training other than that described above, such as in manpower development programs, military training programs, industrial training programs, or apprenticeship programs, will be granted credit against required general experience, generally on a month-for-month basis.

The maximum amount of experience for which education may be substituted is 3 years.★

BASIS OF RATING

No written test is required.

Applicants will be rated on a scale of 100 on the basis of their experience, education, training, personal qualifications, and suitability, based upon the description of their experience, education, training, and other qualifications in their applications, and upon any additional evidence that may be secured in the examination.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 4.

ENGINEERING STUDENT TRAINEE SERIES

CS–999

Student Trainee (Appropriate Specialty) CS–2, 3, 4, 5

The qualification standard appearing under the General Student Trainee Series, GS–099–0, is to be used for these positions.

Student Trainee (Appropriate Specialty)
GS-2, 3, 4, 5

(Schedule B Positions Excepted From the Competitive Service)

This standard is applicable to preprofessional student trainee positions in cooperative work-study programs leading to employment in an occupation that the Civil Service Commission determines to be a shortage occupation for this purpose. The series covered include but are not limited to the following:

Engineering Student Trainee Series, GS-899;

Physical Science Student Trainee Series, GS-1299;

Mathematical Science Student Trainee Series, GS-1599.

For purposes of this standard, a cooperative work-study program is a program involving alternating periods of planned work experience and related study at an accredited college or university in either (*a*) a curriculum in which the work experience is a prerequisite to graduation, or (*b*) a curriculum where formal arrangements are made with a college or university for selecting and retaining program participants and for scheduling and coordinating work experience and academic study.

Regardless of the type of college or university, the essential ingredient of a cooperative work-study program—under the provisions of this standard and Schedule B exception, Section 213.3202(a)—is the written agreement between the agency and the college under which the college has the right to approve the work assignment, and selection of the individual is contingent upon his acceptability to the school. Under such arrangements selection of participants through competitive examination is not feasible. Note, however, that work-study programs—with or without formal agency-college arrangements—under which the periods of employment are confined to regular summer vacation periods, are not within the scope of this standard.

DESCRIPTION OF THE WORK

The duties of these positions will be to participate in special training programs consisting of planned on-the-job training in a Federal establishment and study at a college or university. While on the job, student trainees will work under the guidance of, and will assist professional personnel in one or more of the scientific, engineering, or allied fields, performing preprofessional duties pertinent to the field for which they are being trained. They participate in research or other scientific or technical work such as development, design, surveys, investigations, computations, laboratory or field experimentation, construction, testing, or standardization. They prepare materials, equipment, or specimens for tests; operate apparatus under carefully controlled conditions for precise measurements; compute or analyze data; and prepare reports. The difficulty and responsibility of the work varies with the grade level of the position.

In consideration of the *essential* trainee nature of student trainee positions, that portion of time spent in on-the-job training includes the repetitive performance of routine duties to a limited degree only. Such duties occur only as part of a carefully programed development plan designed to familiarize the trainee with detailed operations of the establishment.

The two phases of training, that is, work experience and academic study, may be carried on concurrently as a result of the student trainees' being employed part time in school attendance, or they may be alternated successively. Both work training and attendance at the educational institution are essential parts of the duties of the position.

Students will enter the training program at a grade level consistent with the stage of their academic progress and may be promoted to the various higher trainee grades at such times as they have completed prescribed portions of the combined work and college requirements of the training program. Upon satisfactory completion of a period of college study, the employing

agency may, subject to the trainee's fulfillment of all requirements for continuation in the program, return the trainee to his former position and grade, or may promote him, if eligible, to a higher trainee grade. An appointee whose first period of on-the-job training precedes the beginning of college study must begin his college study within 9 months of the date of his entrance on the job; otherwise, he will be separated from the student trainee position. However, if the trainee's work-study program is interrupted by military service, the above time limitations may be extended.

MINIMUM EDUCATIONAL REQUIREMENTS

Candidates must have been enrolled or accepted for enrollment in an accredited college or university in a curriculum leading to the bachelor's degree; or they must have been graduated from an accredited high school with credits in all courses required for admission to such a college curriculum and they must have the intention of enrolling and beginning their college study within 4 months of the date of entrance on duty in the student trainee positions.

The college study specified must lead to a bachelor's degree with specialization in or directly related to the field in which they will receive training on the job. The degree of specialization in this field must satisfy on graduation the specific educational requirements in the qualification standard for the corresponding professional positions.

The basic requirements for all student trainee positions is fully qualifying for GS–2.

ADDITIONAL REQUIREMENTS

For Student Trainee, GS–3: One full academic year of study.

For Student Trainee, GS–4: Two full academic years of study.

For Student Trainee, GS–5: (*a*) Upon completion of three-fourths of the total number of periods of study in college required for the bachelor's degree and one period of employment as student trainee GS–4; or (*b*) upon completion of 2½ years of academic study plus 6 months of Student Trainee GS–4 work experience.

A full academic year of study is defined as a period or combination of periods of study at college equal in length to two semesters or three quarters.

By "period of study in college" is meant a semester or quarter of attendance in a regular full-time college curriculum or one of the periods of attendance at college in a cooperative curriculum. A "period of employment" is one of the work periods of an alternating work-study program of a cooperative curriculum, or part-time employment equivalent to 60 days' full-time employment.

WRITTEN TEST

No written test is required.

QUALITY IN SELECTION AND RETENTION

Each agency-college agreement must include provisions to assure that the trainees selected for the cooperative work-study program are "quality" students who have demonstrated better than average ability or potential. Because of the diversity of cooperative programs and because selection of trainees is commonly made during or shortly after the freshman year it is appropriate to provide flexibility in techniques to be used to identify quality students. The following are suggested as illustrative of the provisions which may be included in the agreements:

1. The candidate has a "B" average in his high school or college work.

2. The candidate stands in the upper half of his class, including all departments of the college or university, based on completed academic work in college or high school, or on his score on college entrance tests.

3. The candidate satisfies a "quality" standard applied by the school for entrance into the cooperative program which is clearly more demanding than the standard applied to students not in cooperative programs.

4. The head of the department or other responsible school official certifies that considering the candidate's total qualifications including achievements, demonstrated leadership, motivation, and personal characteristics, the candidate is very likely to perform in a highly successful manner.

Student trainees are required to satisfy both the academic standards of the school and the work performance standards of the employing agency. Students who fail to maintain appropriate academic standards will be dropped from employment.

AGE LIMITS

Minimum 16 (except when in conflict with local, State, or Federal laws).

CONVERSION TO CAREER OR CAREER-CONDITIONAL APPOINTMENT

A student trainee who has successfully completed a preprofessional cooperative work-study program while serving in a student trainee position that is excepted from the competitive service under Schedule B, Section 213.3202(a) may receive a career or career-conditional appointment without competitive examination to a professional position (in the field of work in which he received his training) at grade GS-5 or GS-7. The basic requirements for such noncompetitive conversion are set forth in the Federal Personnel Manual.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 4 except that for positions involving the use of stereoscopic instruments, good vision in each eye, with or without glasses, and ability to perceive three-dimension effects are required. In addition, most positions require the ability to distinguish either basic or shades of colors.

HEARINGS AND APPEALS SERIES

Hearings and Appeals Positions, GS–9/15

Duties

Hearings or appeals officers adjudicate, or analyze and develop for adjudication, cases which typically include the conduct of formal or informal hearings that accord appropriate due process, arising under statute or under the regulations of a Federal agency when the hearings are not subject to the Administrative Procedure Act; or conduct appellate reviews of prior decisions. They review and evaluate investigative reports and case records, conduct hearings in an orderly and impartial manner, determine credibility of witnesses, sift and evaluate evidence, analyze complex issues, apply agency rules and regulations and court decisions, prepare clear and concise statements of fact, and exercise sound judgment in arriving at decisions. Some employees apply a substantive knowledge of agency policies, programs, and requirements in fields such as personnel management or environmental protection.

Experience and training

Except for the substitution of education provided below, candidates must have had the following kinds and length of experience:

Grade:	*Length of experience*
GS–9	5 years
GS–11 and above	6 years

Experience

Candidates must have had progressively responsible experience in a legal, quasi-legal, or administrative field that demonstrated (1) sound judgment and skill in the analysis and presentation of cases or complex issues, and (2) as appropriate to the level and kind of positions to be filled, the knowledges, skills and abilities required to conduct hearings and adjudicate cases that involve interpretation and application of policy, rules, and regulations. These include:

(1) Ability to deal with complex issues in an orderly and systematic way;
(2) Ability to understand the nature and complexity of problems;
(3) Ability to identify and isolate the controlling issue from a complex fact situation;
(4) Ability to make a logical and objective determination of pertinent facts;
(5) Ability to apply mature judgment in assessing the practical implications of alternative solutions to problems;
(6) Ability to interpret and apply policy, regulations, and precedent decisions;
(7) Ability to deal effectively with individuals and groups;
(8) Ability to communicate precisely and effectively orally and in writing;
(9) As required, knowledge of the pertinent subject matter area;
(10) Ability to determine the credibility of witnesses;
(11) Skill in conducting hearings, meetings, or conferences with the appropriate objectivity, demeanor, and poise.

Quality of experience

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a given grade level. The candidates' total record of experience and education must show that they have the ability and personal qualities to perform the duties of the position to be filled.

Part-time or unpaid experience

Credit will be given for all appropriate qualifying experience, regardless of whether compensation was received or whether the experience was gained in a part-time or full-time occupation. Part-time or unpaid experience will be credited on the basis of time actually spent in appropriate activities. Candidates wishing to

receive credit for such experience must indicate clearly the nature of their duties and responsibilities in each position and the number of hours a week spent in such employment.

Substitution of education for experience

1. Completion of a total of at least six years of pre-legal and legal education which meets all the requirements for an LL.B. or J.D. degree may be substituted for 5 years of experience and meets in full the requirements for grade GS–9.
2. A 4-year course in an accredited college or university leading to a bachelor's degree may be substituted for 3 years of experience or prorated. An academic year of study which comprises 30 semester hours or 45 quarterhours is equivalent to 9 months of experience.

Interview

A preemployment interview may be required to determine that candidates possess the personal qualities necessary for successful performance in the position.

Supervisory Positions

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook should also be used.

Selective Placement

For positions that require particular knowledges and skills, e.g., knowledge of agency policies, programs, and requirements in fields such as personnel management or environmental protection, consideration may be restricted to those candidates whose background indicates that they possess the required knowledges and skills.

Basis of Rating

Candidates will not be required to take a written test for any of these positions, but will be rated on the quality and extent of experience, knowledge, training, and personal characteristics in relationship to the duties of the positions. Such ratings will be based upon candidates' statements in their applications and upon any additional evidence that may be secured.

Physical Requirements

See part II, Physical Requirements, paragraph 3. In addition, candidates must possess emotional and mental stability.

PARALEGAL SPECIALIST SERIES

Note: **This special qualification standard has been developed for interim use until a full-scale standards study of the occupation is made.**

Paralegal Specialist, GS–5 and above

DESCRIPTION OF WORK

Paralegal specialist positions involve such activities as (a) legal research, analyzing legal decisions, opinions, rulings, memoranda, and other legal material, selecting principles of law, and preparing digests of the points of law involved; (b) selecting, assembling, summarizing, and compiling substantive information on statutes, treaties, contracts, other legal instruments, and specific legal subjects; (c) case preparation for civil litigation, criminal law proceedings or agency hearings, including the collection, analysis, and evaluation of evidence, e.g., as to fraud and fraudulent and other irregular activities or violations of laws; (d) analyzing facts and legal questions presented by personnel administering specific Federal laws, answering the questions where they have been settled by interpretations of applicable legal provisions, regulations, precedents, and agency policy, and in some instances preparing informative and instructional material for general use; (e) adjudicating applications or cases on the basis of pertinent laws, regulations, policies and precedent decisions; or (f) performing other paralegal duties requiring discretion and independent judgment in the application of specialized knowledge of particular laws, regulations, precedents, or agency practices based thereon. These duties may or may not be performed under the direction of a lawyer.

EXPERIENCE AND TRAINING REQUIREMENTS

Except for the substitution of education provided for below, candidates must have had both general and specialized experience as follows:

Grade	*Experience*		
	General (years)	*Specialized (years)*	*Total (years)*
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11 and above	3	3	6

General experience

This is progressively responsible experience which demonstrated the ability to explain, apply or interpret rules, regulations, procedures, policies, precedents, or other kinds of criteria. Such experience may have been gained in administrative, professional, investigative, technical, high level clerical, or other responsible work.

Qualifying general experience may have been gained, for example, as a legal clerk, claims examiner, claims adjuster, voucher examiner, investigator, or contact representative.

Specialized experience

This is legal, quasi-legal, paralegal, legal technician, or related work that demonstrated:

—Ability to evaluate pertinent facts and evidence;
—Ability to interpret and apply laws, rules, regulations, and precedents;
—Skill and judgment in the analysis of cases;
—Ability to communicate effectively orally and in writing;
—As required, ability to deal effectively with individuals and groups;
—As required, knowledge of the pertinent subject area.

Qualifying specialized experience may have been acquired in positions which involved, for example:

(1) Preparation, development, examination, review, or authorization of action on claims in accordance with applicable laws, rules, regulations, precedents, policies, office practices and established procedures; or

(2) Examination and/or preparation of contracts, legal instruments, or other documents to assure completeness of information and conformance to pertinent laws, rules, regulations, precedents, and office requirements which has required the application of a specialized knowledge of particular laws, or of regulations, precedents or practices based thereon; or

(3) Analysis of legal decisions, opinions, rulings, memoranda, and other legal material and preparation of digests of the

points of law involved for the internal use of the agency; or

(4) Interpretation and application of laws and related regulations in determining individual or agency responsibility, e.g., potential liability of individuals to the Government for fraud, overpayment of benefits, taxes, etc., and potential liability of an agency for tort, loss of personal property, etc.; or

(5) Selection, compilation, and summarization of substantive information on statutes, treaties, and specific legal subjects for the use of others; or

(6) Conduct of hearings or adjudication of appeals arising under statute or regulations of a Government agency; or

(7) Investigation and analysis of evidence of alleged or suspected violations of laws or regulations.

Quality of experience

For positions at any grade, the required amount of experience will not in itself be accepted as proof of qualification. The candidate's record of experience and training must show the ability to perform the duties of the position. For positions at grades GS–11 and below, at least six months of the required specialized experience must have been at a level of difficulty and responsibility equivalent to that of the next lower grade, or one year of such experience at a level equivalent to the second lower grade in the Federal service. For positions at grades GS–12 and above, at least one year of the required specialized experience must have been at a level equivalent to the next lower grade in the Federal service.

Supervisory positions

For supervisory positions, the qualification standard for Supervisory Positions in General Schedule Occupations in part III of Handbook X–118 should also be used.

Substitution of education for experience

(1) Successful completion of a full 4-year course in an accredited college or university leading to a bachelor's degree may be substituted for three years of general experience. Such education successfully completed in a residence school above high school level may be substituted at the rate of one academic year of study for nine months of experience up to a maximum of four years of study for three years of general experience.

(2) Completion of all requirements for an LL.B., J.D., or higher degree from a recognized law school, including at least six full years of resident college work, will meet the requirements for grade GS–9.

(3) Successful completion of one full academic year of study, e.g., 30 semester hours, in a paralegal or legal curriculum may be substituted for one year of specialized experience required for grades GS–7 and above; less than one full year of study will be credited on a pro rata basis.

WRITTEN TEST

Candidates for competitive appointment to grades GS–5 and GS–7 must pass an appropriate written test. For inservice placement actions. the test is *not* required and, therefore, may *not* be used on a pass-fail basis. In addition, the test may *not* be used in evaluating or ranking eligible employees unless the test is approved for this purpose by the Civil Service Commission.

BASIS OF RATING

Competitors for all positions are rated on a scale of 100. Rankings are made:

1. *For competitive appointment at grades 5 and 7*—On the basis of the written test.
2. *For competitive appointments above GS–7*—On the basis of the extent and quality of experience and training relevant to the duties of the position.

PHYSICAL REQUIREMENTS

Candidates must be physically able to perform the duties of the position efficiently and without hazard to themselves or to others. Ability to read without strain printed material the

size of typewritten characters is required, corrective lenses permitted. Ability to speak without impediment may be required for some positions. Ability to hear the conversational voice, with or without a hearing aid, is required for most positions; however, some positions may be suitable for the deaf. In most instances, an amputation of arm, hand, leg, or foot, will not disqualify for appointment, although it may be necessary that this condition be compensated by the use of satisfactory prosthesis. Candidates must possess emotional and mental stability.

CONTACT REPRESENTATIVE SERIES*

For positions in the Contact Representative occupation, GS–962, grades GS–4/11

Contact Representative

DESCRIPTION OF WORK

Contact representatives provide information to the public on agency programs that involve benefits (e.g., pensions), privileges (e.g., naturalization), or obligations (e.g., taxes) that affect a large segment of the general public. They explain regulatory provisions and inform individuals of the required or most advantageous actions to take to obtain benefits or fulfill obligations. They may also assist individuals in preparing required documents to apply for benefits or fulfill obligations, investigate and initiate corrective action on delays or errors, and explain agency determinations on individual cases and appeal procedures.

EXPERIENCE, EDUCATION, OR TRAINING REQUIREMENTS

Except for the substitutions authorized below, applicants must have had the kind and amount of experience shown in the table below and described in the following paragraphs:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–4	2	0	2
GS–5	3	0	3
GS–6	3	1	4
GS–7	3	2	5
GS–8 and above	3	3	6

General experience

General experience includes any kind of work that demonstrates—

—an aptitude for meeting and dealing with the public;

AND

—the ability to understand and apply a body of rules, regulations, and precedent decisions to specific cases or applications for benefits, privileges, etc.

Specialized experience

Specialized experience includes *either:*

(1) Experience that has provided skill in conducting personal and telephone contacts with a wide range of individuals. Such experience must demonstrate:

(a) the ability to explain complex technical or regulatory information and to adapt explanations and language used to different levels of understanding;

AND

(b) the ability to conduct interviews in a way that establishes good relations while obtaining or providing relevant information in the minimum amount of time;

AND

(c) the ability to recognize and overcome attitudes or emotions that hinder effective communication.

OR

(2) Technical, investigative, professional, or quasi-legal work that has provided a good working knowledge of the body of law, regulations, and procedures governing the program with which the position is concerned. Such experience must demonstrate knowledge of the coverage of the major benefits, privileges, or obligations involved; the documents and supporting evidence required for agency action; the factors that affect the specific benefit or obligation due; and ability to describe and discuss the benefits or obligations with persons affected by them.

OR

(3) A combination of (1) and (2) above.

For grades GS–6 and GS–7, agencies may specify that a portion of the specialized experience required must be of the nature described in (2) above.

For grades GS–8 and above, candidates must possess *both* contact experience and relevant program experience as described in (1) and (2) above.

*Supersedes single-agency qualification standard that applied only to the Veterans Administration issued in May 1968.

SUPERVISORY EXPERIENCE

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

QUALITY OF EXPERIENCE

The required amount of experience will not in itself be accepted as a proof of qualification. The candidate's record of experience and training must demonstrate ability to perform the duties of the position. In addition, candidates must have at least 1 year of experience comparable to the next lower grade in the Federal service or 2 years of experience comparable to the second lower grade.

PERSONAL QUALITIES

In addition to meeting all other requirements, candidates must demonstrate that they possess certain traits and characteristics that are important in contact representative positions. Among such traits are:

—clarity of speech,
—tact,
—poise,
—ability to establish confidence and put others at ease,
—ability to grasp significant points and to organize and express thoughts clearly in personal or telephone contacts, and
—appropriate dress and appearance.

Persons who meet the experience and training requirements may be required to appear for a preemployment interview to demonstrate that they possess the needed personal qualities.

BILINGUAL ABILITY

Some positions in this occupation may require the ability to speak and read both Spanish and English, or other languages in addition to English. For these positions, selections will be limited to persons who have the required ability in two languages.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

For the *first 2 years* of general experience, successfully completed resident education in a school above the high school level may be substituted for experience at the rate of ½ *academic year* of study (i.e., 18 weeks of substantially full-time study or 15 semester hours, or the equivalent) for *6 months* of general experience. Two full years of study of this type may be substituted in full for the 2 years of experience required for grade GS–4. No credit will be allowed for training which has been obtained only or primarily in the basic skills of shorthand or typing, or refresher courses.

For general experience required in excess of 2 years, education in a school above the high school level may be substituted at the rate of *1 academic year* of education for *6 months* of general experience. A full 4 year course of this type of study may be substituted for a maximum of 3 years of general experience and is fully qualifying for grade GS–5.

No substitution is allowed for specialized experience.

BASIS OF RATING

No written test is required.

Applicants will be rated on the basis of an evaluation of their experience, training, or education as it pertains to the knowledges, skills, and abilities required for this work. Information for rating applicants will be obtained from statements in the application forms, from reference checks with supervisors and others who know the applicant's work and abilities, and from other information which may be obtained by the Civil Service Commission.

GUIDE FOR EVALUATING EMPLOYEES FOR INSERVICE PLACEMENT

1. *Modification of specialized experience requirements*
   (a) For positions at grades GS–8 and above, this standard requires both contact experience and relevant program experience. Agencies have available a number

of methods other than evaluation of contact experience to measure key contact skills, such as interviews, role playing, and special appraisals. Agencies may substitute these methods of evaluating oral communication skills for the required contact experience.

(b) Experience in a related line of work may be substituted in full for the specialized experience requirements for contact representative positions under the following circumstances:

(1) The employee meet all qualifications for and has obtained at least 1 year of experience in a related field of work at the next lower grade level; and

(2) The work performed in that position is creditable as specialized experience for the contact representative position; and

(3) The employee clearly demonstrates that he possesses both the oral communication skills and the program knowledges required for successful performance in the contact representative position.

For example, an employee with 1 year of experience as a GS–7 claims examiner in the appropriate field may qualify for promotion to a GS–8 contact representative position under the above provisions, even though he/she does not possess the total of 3 years of specialized experience specified for the GS–8 level, provided he/she demonstrates oral communication skill to an appropriate degree for the work to be done.

NOTE: For positions in the Veterans Administration at grades GS–5 through GS–11, for inservice placement only, 6 months of specialized experience as a conduct representative in a veterans benefits program is acceptable.

2. *Guide for evaluating candidates*

The two basic requirements for successful performance in this occupation are skill in personal contacts with the public and ability to understand and explain the benefits, privileges, or obligations involved in agency programs.

Candidates must be able to deal effectively with people of varied backgrounds and personalities. They should possess empathy and a desire to be helpful, combined with objectivity and the ability to be firm if the situation calls for that. These qualities, plus those of tact, poise, clarity of speech, ability to grasp significant points and to organize and express thoughts clearly in oral discussions are significant factors in successful performance.

The interview is a valuable technique for evaluating these factors. Also useful are appraisals from supervisors (present and past) or from individuals who have had contacts with the candidate concerning these personal qualities and any demonstrated abilities in public contact work.

In evaluating the level of public contact experience consider:

— the variety of types of people and inquiries encountered;

— the extent to which the candidate dealt with communication probiems resulting from such factors as emotional stress or hostility, physical or mental defects, limited knowledge of English, etc.; and

— the degree to which the candidate was required to develop information on personal circumstances or explain alternatives to individuals.

The extent of the candidate's knowledge of the laws, regulations, and procedures covering the benefits, privileges, or obligations with which the position is concerned is the second major factor. This evaluation should include a review of the candidate's work history and performance. The evaluation process should reflect the depth of knowledge of regulations and procedures and factors that affect the specific benefit or obligation due. In programs involving more than one type of benefit or obligation, the breadth of knowledge must also be considered, in terms of the relative weight or level of

difficulty of those aspects in which the candidate is knowledgeable versus the overall knowledges required.

For candidates that do not have experience in the program involved, the evaluation should focus on evidence of ability to understand complex instructions and regulatory material and ability to learn quickly and retain complex instructions and changes in guidelines or procedures.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3, except that there may be a few positions suitable for the blind provided suitable equipment is available. In addition, applicants must possess emotional and mental stability.

Clerk Positions GS–4/5

Examiner Positions GS–4/9

GENERAL INFORMATION

The title of each position in this series reflects the qualifications required for the position. The first part of the title (e.g., *Applications* Clerk, *Bond* Examiner, etc.) indicates the type of legal instrument examining with which the position is primarily concerned and, therefore, the field of specialized knowledge required. The second part of the title (i.e., either Clerk or Examiner) indicates the nature of the examining process. Clerk positions are concerned with the initial phase: the detailed processing and assembling of cases. Examiner positions, on the other hand, are primarily concerned with the final phase: examination and decision on the overall merits of cases.

Additions are made to these basic titles, as appropriate, to identify other or further qualification or duty requirements. Positions whose grades are based upon the performance of supervisory duties have the word "Supervisory" added as the first word of their title. Such positions require supervisory qualifications, as detailed below.

VARIETY POSITIONS

Two types of positions are found which have been given additional grade credit because of the extraordinary qualifications which they require. These positions are identified by their titles and must be given special treatment:

(1) Positions titled "General Documents Examiner" (or Clerk) involve the performance of *three* or *more* different types of legal instruments examining, all of which are of the same level of difficulty.

(2) Positions with such two-part titles as "Applications and Bonds Clerk" or "Securities and Statements Examiner" involve the performance of *two* different types of legal instruments examining, both of the same level of difficulty.

To be eligible for either of these "variety" positions, applicants must show *either:*

(1) Any combination of lower-level specialized experience, meeting the total specialized experience requirement of the grade level for which rated, *which includes* at least 6 months in *each* of the two (in "General Documents" positions, *any* two) types of work with which the position is concerned; *or*

(2) At least 6 months of specialized experience in *one* of the types of work involved *at the same grade level as the position for which rated*, along with such additional lower-level experience as is necessary to meet the total specialized experience requirement of the grade level.

"MISCELLANEOUS DOCUMENTS" POSITIONS

Positions titled "Miscellaneous Documents Examiner" or "Miscellaneous Documents Clerk" involve the examination of legal instruments which cannot be identified with any of the general categories of instruments (and/or supporting documents) specifically identified in this series. Each such case should be analyzed individually and on its own merits, and any specialized experience should be credited which clearly indicates the applicant's ability to perform the work of the position.

Part A—Clerk Positions GS–4/5

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Applicants for clerk positions must have had the following amounts of general and specialized experience:

Grade	General (years)	Specialized (years)	Total (years)
GS–4	1	1	2
GS–5	1	2	3

General experience is progressively responsible general office clerical experience which has demonstrated the ability to perform technical clerical duties satisfactorily at the grade level of the position.

(TS 117)
August 1968
Reprinted without change January 1978 (TS–164)

Specialized experience is progressively responsible experience in processing or examining the same general category of legal instrument as that with which the position is primarily concerned (i.e., applications, bonds, contracts, conveyances, fiduciary accounts, securities, statements, or miscellaneous). Experience in *one* type of legal instrument processing or examining is acceptable as specialized experience for *any other* type of processing or examining position at GS–4, and for a maximum of 1 year of the specialized experience for GS–5 positions.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed study in a resident school or institution above the high school level may be substituted for general experience and for the *first year* of specialized experience, as follows:

(1) Study may be substituted on the basis of one-half academic year of study for 6 months of experience, *provided* a minimum of 6 semester hours per year is shown in the subjects of business, economics, political science, or law.

(2) Study completed in a business or secretarial school may be substituted on the basis of 18 weeks of study for 6 months of experience. Credit will be allowed for full-time or part-time study at the rate of 20 class hours of instruction for 1 week of study in such subjects as: general business; business arithmetic; business law; business English; office practices; bookkeeping; or accounting. No credit will be given, however, for training which has been obtained only in the basic skills of typing or shorthand or in "refresher" courses.

WRITTEN TESTS

A written test is required → at grade GS–4. ← It should be waived for in-service placement actions, but not for appointments outside the register.

BASIS OF RATING

→ Applicants at grade GS–4 will be rated on the basis of their written test scores. Applicants at grade GS–5 will be rated on the basis of their experience and education. ←

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

Part B—Examiner Positions GS–4/9

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Applicants for examiner positions must have had the following amounts of general and specialized experience:

Grade	General (years)	Specialized (years)	Total (years)
GS–4	2	None	2
GS–5	2	1	3
GS–6	2	2	4
GS–7	2	3	5
GS–8 and above	2	4	6

General experience is any progressively responsible experience in administrative, professional, investigative, technical, or responsible office clerical or subprofessional work.

Specialized experience is progressively responsible experience in adjudicating, or performing other final examination, on the merits of the legal instrument cases in the same category as that with which the position is primarily concerned. Experience in examining *other* categories of legal instruments—or experience solely in the *clerical* processing of the *same* category of legal instruments—is acceptable for a maximum of 1 year of specialized experience. Clerical experience in *other* cate-

gories is acceptable for a maximum of six months of specialized experience.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Study of the nature described under part A above may be substituted for the general experience requirement and for a *maximum of one year of specialized experience* at the rate of:

One-half an academic year of study for six months of general experience;

One academic year of study for six months of specialized experience.

WRITTEN TESTS

A written test is required for positions in grade GS–4.

For inservice placement actions, the test is not required and, therefore, may not be used on a pass-fail basis. In addition, the test may not be used in evaluating or ranking eligible employees unless the test is approved for this purpose by the Civil Service Commission. (See *FPM Chapter 335.*)

BASIS OF RATING

Ratings will be based on a scale of 100. Applicants for positions at grade GS–4 will be rated on the basis of their written test scores. Applicants for positions at grades GS–5 and above will be rated on the basis of an evaluation of their experience and training as shown in their applications and of any additional information which may be obtained by the Civil Service Commission.

PHYSICAL REQUIREMENTS

See Part II, Physical Requirements, paragraph 3. In addition, applicants must have emotional and mental stability.

→Part C—The following paragraphs apply to Clerk and Examiner Positions←

QUALITY OF EXPERIENCE

For GS–4 positions, at least six months of the required experience must have been at a level of difficulty comparable to grade GS–3 in the Federal service. For GS–5 positions, at least one year of the required specialized experience must have been comparable to grade GS–4. At GS–6 and above, at least one year of the required specialized experience must have been comparable to the next lower grade, or two years of the required specialized experience must have been comparable to the second lower grade.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for Supervisory Positions in General Schedule Occupations in part III of this handbook should be used in conjunction with this standard.

LEGAL CLERK AND TECHNICIAN SERIES

Legal Clerk, GS–4/5
Legal Technician, GS–6 and above

This standard covers positions in the Legal Clerk and Technician Series at grades GS–4 and above. For any positions established in this series below grade GS–4, apply the GS–300 qualification standard for Clerk (various positions), GS–1/3. For supervisory positions, apply the qualification standard for Supervisory Positions in General Schedule Occupations in conjunction with this standard.

This standard supersedes the Special Qualification Standard for Legal Clerk and Technician, GS–4 and above, dated August 1975.

DESCRIPTION OF WORK

This occupation includes a variety of legal clerical and technical support functions. All positions require knowledge of: (1) the form, content, and uses of civilian or military legal documents, records, or reference materials; and/or (2) the sequential steps, time limits involved, and documents required in the civilian or military legal processes associated with the legal or quasi-judicial activities of the unit in which the position is located. These knowledges are applied in such duties as preparing or reviewing standardized legal documents; maintaining and abstracting data from legal records or legal reference materials; maintaining docket calendars and tickler systems; and related legal support functions performed in accordance with established practices and procedures.

The work in this occupation requires accuracy and careful attention to detail, often under pressures of meeting deadlines. Employees must be able to understand and apply legal terminology and relatively complex written guidelines, and to distinguish between different phases of legal processes or different processes for varying legal actions. Employees, particularly at the higher grade levels, will be expected to assume responsibility for the accuracy and timeliness of their work, following through on the appropriate sequence of actions on recurring assignments, and recognizing situations that require special action.

EXPERIENCE REQUIREMENTS

Except for authorized substitutions, candidates must have had qualifying experience in the amounts shown in the following table, and of the nature described below.

Grade	Experience (in years)		
	General	Specialized	Total
GS-4	2	None	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5
GS-8 and above	2	4	6

General Experience

General experience is any experience which demonstrates ability to perform clerical tasks accurately in accordance with established procedures.

Specialized Experience

Specialized experience is responsible clerical, technical, administrative, or investigative experience that demonstrates: (1) ability to apply a body of rules, regulations, precedents, and procedures *and* (2) a knowledge of legal documents and legal or judicial processes.

Qualifying experience may have been gained by performing substantive clerical or secretarial work in a law office or an organization engaged in legal, quasi-judicial, or law enforcement activities. Qualifying experience may also have been gained by performing clerical or technical work involving the application of contractual provisions; the development or examination of claims, tax returns, or other legal documents; the explanation of entitlement to various benefits; or similar duties which provide a knowledge of at least one category of legal documents and a related body of law, regulations, precedents, and procedures.

For grade GS–6, six months of specialized experience, and for GS–7 and above, at least one year of the specialized experience must have been in directly related work which provided knowledge of the category of legal documents

and the legal or judicial processes with which the position to be filled is concerned.

Quality of Experience

For positions at any grade, the required amount of experience will not, in itself, be accepted as proof of qualification. The applicant's background of experience and training must be of sufficient scope and depth as to clearly demonstrate ability to perform the duties at the grade level of the position to be filled. In this respect, the level of difficulty and responsibility of the candidate's experience must be evaluated in relation to the grade levels of work in the Federal Service. For positions at GS–4, at least six months of the general experience must be of a level of difficulty and responsibility equivalent to GS–3. For positions at GS–5 and above, at least one year of the specialized experience must be of a level of difficulty and responsibility equivalent to the next lower grade in the Federal Service, except as provided in Federal Personnel Manual Chapter 300, Subchapter 6, Section 6–2(a)(3).

SUBSTITUTIONS

1. Study in an accredited college or university may be substituted for experience, as follows:

   a. Any college study may be substituted for *general* experience at the rate of one academic year (30 semester hours or the equivalent) for one year of general experience.

   b. A maximum of two years of college study may be substituted for *specialized* experience at the rate of one academic year (30 semester hours or the equivalent) for six months of specialized experience, provided such study includes or is supplemented with an average of six semester hours per year (or the equivalent) of courses in law or in legal or judicial processes. Courses in law related areas such as political science or law enforcement would not be qualifying unless they specifically and substantially deal with the legal system, techniques, and procedures. (See the addendum to this standard for examples of courses that may be used in substituting education for specialized experience.)

   Under these provisions, completion of a two year course of study is fully qualifying for grade GS–4; completion of a four year course of study which includes or is supplemented with 12 semester hours in legal courses is fully qualifying for grade GS–5.

2. Study of general business or office practices in a business, technical, or vocational school which included courses such as business english, business mathematics, and business law may be substituted for *general* experience at the rate of one week of full time study (at least 20 clock hours of instruction) for one week of general experience. Such study that is devoted solely to skills training in shorthand, typing or office machine operating is not creditable.

3. Completion of an intensive, specialized course of study which requires substantial additional study outside the classroom, as is typical for college-level courses, and which is specifically designed as career preparation for legal secretaries, paralegals, or legal assistants may be substituted for *specialized* experience at the rate of 15 hours of instruction for one week of experience.

4. No substitution is authorized for any of the additional experience required above the grade GS–5 level.

5. When education combined with experience to meet qualification requirements, the experience must be of the level required under the Quality of Experience section.

WRITTEN TEST

A written test is required for appointments from the competitive register and from outside

the register at grade GS–4. For inservice placement action the written test is not required. If a test is used, it may not be used on a pass/fail basis. For information on when and how a test may be used in evaluating eligible employees, see FPM Supplement 335–1.

BASIS OF RATING

Candidates for GS–4 positions will be rated on the basis of their test scores. Candidates for positions at grades GS–5 and above will be rated on the basis of their experience and training as it relates to the duties of the position to be filled. For positions at GS–6 and above, agencies must identify the specific knowledges and skills or work behaviors needed to perform the duties of the positions to be filled as the basis for evaluating what constitutes directly related work. Such specific requirements may also be appropriate for some positions at the GS–5 level.

INSERVICE PLACEMENT ACTIONS

For inservice placement actions at any grade, the basis of rating is established by the agency in accordance with FPM Supplement 335–1.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operations and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

ADDENDUM

Examples of college-level courses that may be substituted for specialized experience:

Labor and the Law—involves a study of the development of common and statutory law with reference to industrial relations in the United States with emphasis on the case method.

Legal Aspects of Accounting—involves an examination of legal problems inherent in business transactions and their accounting and auditing implications.

Americal Legal Order—introduces students to American legal institutions and the legal process focusing on judicial and nonjudicial methods of lawmaking, the relationship between the legal process and public policy, and the limitations and capabilities of law as an instrument of social change.

Business Law—involves a survey of basic legal principles as applied to individual and business activities, including contracts, the Uniform Commercial Code, commercial paper, torts, and property and consumer rights.

Collective Bargaining—examines the relevant State and Federal laws covering public sector collective bargaining, the various issues, and collective bargaining techniques in the Federal Government.

Legal Environment of Business—involves an exploration of governmental organization, constitutional provisions as applied to business, such as the Commerce clause, taxing power, Fifth and Fourteenth Amendments, purpose and operation of administrative agencies, and antitrust policy.

Interior Decorator, GS–5, 7, 9, 11

Color Designer, GS–5, 7, 9, 11

Applicants must have had the amount and type of progressive experience specified below and must show ability to perform the duties of the position for which they are being considered.

A progressively higher level of experience is necessary to qualify for each succeeding grade. For GS–7, 9, and 11, applicants must show 1 year of experience at a level of difficulty comparable to that of GS–5, 7, and 9 in this series respectively.

For GS–11, applicants must have demonstrated the required ability to perform supervisory duties and plan programs.

Interior decorator	Years of experience	Type of experience
GS–5	4	Type A or a combination of Type A and not more than 1 year of Type B.
GS–7	5	
GS–9	6	
GS–11	7	
Color Designer		
GS–5	4	Type A or B.
GS–7	5	Type A or B provided 1 year of Type B is shown.
GS–9	6	Type A or B provided 1½ years of Type B are shown.
GS–11	7	Type A or B provided 2 years Type B are shown.

Type A experience: Progressive responsible experience in the decoration or designing of artistic interiors of buildings which has demonstrated that the applicant has acquired a thorough knowledge of the fundamental principles and theories of professional interior decoration or design. This experience may have been in activities such as:

1. Preparing detailed plans, sketches, and perspectives to scale showing color schemes, furniture, furnishings, and wall decorations.
2. Making selection of upholstery and drapery materials, rugs, and lamps.
3. Designing furniture and making working drawings for its construction.
4. Designing and writing specifications for fabrication and installation of window draperies and stage curtains.
5. Estimating cost and amount of material used in designing interiors.
6. Specifying or making necessary purchases of furnishings of period and modern interior design.
7. Teaching interior decoration and design.

Type B experience: Progressive responsible experience in interior color designing which had afforded or required a working knowledge of architectural drawings of various types of buildings and the symbols thereon; of color as related to applied finishes (linoleum, asphalt, tiles, wall coverings, plastic, etc.); of color and finish textures as related to walls, trim, doors, chapel glass, etc.; and of color and finish texture in relation to light reflectance, esthetic and utilitarian values, climatic conditions, therapeutic and psychological effects, and type or purpose of room or building. This experience may have been gained in activities such as:

1. Preparing or reading and interpreting architectural working drawings of buildings or selecting and specifying, by codes, the colors for applied finishes or finish textures indicated.
2. Preparing project specifications for architectural drawings and contract specifications indicating types and colors of materials.
3. Developing and revising master or standard color guides and charts.
4. Performing research to determine current developments and technical improvements in the use of color.

No credit will be given for experience gained in business or trades or crafts such as paperhanging, ordinary house painting of interiors, furniture upholstering, cabinet making, etc. (commonly called interior decorating), or experience which consists primarily of selling bric-a-brac, furniture, paints, etc.

Substitution: Education successfully completed in an accredited college or university may be substituted for experience year for year up to a maximum of 4 years, provided an average of six semester hours a year is shown in interior decoration or design, architecture, commercial art, or related fine arts courses.

Education successfully completed in specialized schools of interior decoration, design, or

art may be substituted for experience year for year up to a maximum of 4 years, provided an average of 150 class hours a year is shown in interior decoration or design.

Applicants for color designer may not substitute education for the required type B experience.

See part 2, Physical Requirements, paragraph 3. In addition, applicants must be able to distinguish shades of colors.

Exhibits Specialist, GS–5/11

Experience requirements

Except for the substitution of education provided for below, applicants must meet the following experience requirements:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–6	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11	3	3	6

General experience

The general experience should provide the candidate with the necessary dexterity, and mechanical and artistic skill required to do the work of an exhibits specialist. The experience or the education substituted for experience, to be acceptable, must be supported by samples or suitable evidence of past work to show that he has the technical competence to perform work of the type and quality required at the level for which application is being made. The experience might be gained by working in one or a combination of situations such as the following:

1. Experience in the development and presentation of exhibits; in the display of works of art, or mechanical and technical equipment; in the design, construction and installation of posters, photographic displays, or illuminated signs; or in the preservation, preparation or mounting of museum specimens.

2. Experience in the use of several of a variety of tools and techniques related to carpentry, plastics, sheet metal, electrical, electronics work, machining, painting, molding, mechanical and electrical assembly, or in making machines, apparatus and instruments.

3. Experience in wood carving, sculpting, illustrating, interior decorating, or industrial design.

The applicant's experience and training must clearly indicate sufficient knowledge, skill or ability of the kinds listed below. (An applicant need not possess mastery of *all* of the knowledges, skills, or abilities. However, all applicants will be evaluated to determine whether they have enough to perform the duties of the job and will be ranked on the degree to which they possess them.)

1. Creative ability.
2. Artistic ability.
3. Mechanical ability.
4. Ability to plan work.
5. Ability to express thoughts adequately in speech and writing.
6. Ability to study, organize, and understand subject matter of exhibits.
7. Willingness to accept responsibility.
8. Ability to work cooperatively as a member of a team.
9. Orderly work habits (punctuality, neatness).
10. Ability to use hand tools.
11. Ability to use power tools.
12. Knowledge of lighting techniques.
13. Knowledge of color (matching and mixing).
14. Ability to meet assigned deadlines.

Specialized experience

Acceptable specialized experience must have been acquired in the actual field and type of work for which application is made.

The following paragraphs outline the special requirements for each optional field:

Design.—Experience must have involved actual work in planning and designing exhibits, displays, or models.

Model Making.—Experience must have involved actual work in building models or in sculpting in various media.

Art.—Experience must have involved actual work in designing and painting large murals, backgrounds, or full color scenes for dioramas.

Taxidermy.—Experience must have involved the skinning of animals or birds, preservation of skins, sculpting of forms, the preparation of accessories, and the mounting of skins on forms in a lifelike attitude.

Restoration.—Experience must have involved the restoration of antiques, museum specimens, or historic buildings.

General.—Experience must have involved work in two or more of the fields listed above, as appropriate to the job.

The specified amount of experience will not in itself be accepted as proof of qualifications for a position. It must be of a level commensurate with the grade for which application is made. The applicant's record of experience must demonstrate that he has the ability to perform completely the duties of the position.

For grades GS–7, 9, and 11, at least 6 months of the required specialized experience must have been equivalent in difficulty and responsibility to work at the next lower grade or 1 year at a level equivalent to the second lower grade in the Federal service.

For basic eligibility in this examination applicants must show the minimum amount of experience listed above. Applicants will be ranked on the degree to which they possess the required abilities, skills, and knowledges. Thus, the ranking of candidates will not be based on length of experience but on scope and quality of all experience regardless of where or how acquired.

Hobby and part-time experience

Full credit will be given for hobby, unpaid, or part-time experience that is pertinent (i.e., of a quality level usually associated with professional rather than amateur work). The application should contain a full account of such work, giving length of time devoted to it, number of hours, and kind of tools, machinery, instruments, and equipment used. The kinds of materials used in the work and the nature of the objective should be stated. Hobby or part-time experience may be accepted for the specialized as well as the general experience requirement, provided the work done has been of a quality level and demonstrates ability equal to that required by the position for which application is made.

Substitution of education

Residence study successfully completed in a school or institution above high-school level with major study in the following fields may be substituted on the basis of 1 year of full-time study for each year of general experience: Illustrative design, commercial art, fine arts, industrial design, architecture, drafting, interior decorating. Other pertinent study in institutions above the high-school level in related fields will receive appropriate credit depending on the course content.

Education may not be substituted for the required specialized experience.

Physical requirements

See part 8, Physical Requirements, paragraph 5; in addition, applicants must be able to distinguish basic colors. (July 1960.)

Museum Curator (Appropriate Subject Area)
Staff Curator (Appropriate Functional Area)
GS–5/15

GENERAL STATEMENT

This standard covers qualification requirements for museum positions which involve a wide variety of professional duties related to the basic museum function, i.e., research, collections, exhibits and public education. This standard does not cover qualification requirements for historians or for scientists in the various disciplines who may be assigned curatorial duties but whose primary responsibilities are for historical or scientific activities.

DESCRIPTION OF DUTIES

Professional museum work includes study, research, and writing on the historic, scientific, or technical subject matter of the museum; efforts to develop and increase the size and significance of the collection of museum objects or specimens; arrangements for the use of the collection by other researchers; provisions for the conservation, storage, cataloging, and indexing of the material which makes up the collection; and public service in the form of identifying and/or authenticating objects or specimens. Also typical of this work are duties related to the exhibit areas of the museum which involve planning, designing, construction, documentation, and maintenance of exhibits. Duties related to the educational functions of museums may include research, popular writing, lecturing, and similar services.

TYPE OF EDUCATION AND EXPERIENCE REQUIRED

Acceptable work experience related to each subject or functional specialization must have provided one or more of the following types of knowledges and skills:

a. Knowledge and understanding of the subject area of the museum, familiarity with the literature of the field and closely related fields, training and practice in scholarly methods of research, and the ability to write scholarly papers or technical reports.

b. Knowledge and practice in the techniques and methods of developing, expanding, and managing museum collections and of classifying, documenting, and caring for the specimens, artifacts, or objects related to the subject matter of the museum.

c. Knowledge of the techniques and methods of planning and designing museum exhibits and ability to understand the subject matter of the museum (or museums) and to interpret it in effective visual form.

Each of the above types of required knowledge and skill is directly related to the type of museum involved. The subject matter of museums varies widely and the specific knowledge required in one type of museum may be quite different from that necessary in another. These variations are detailed in examples of the specific types of knowledge which are applicable under each of the following specializations:

Museum Curator (Aeronautics).—Knowledge of the scientific and engineering principles of aeronautics; the tools, equipment, processes, or products used in the field of aeronautics; the history of men, machines, and events which have shaped the development of aeronautics; and the methods of preserving, restoring, documenting, and exhibiting the artifacts of the field.

Museum Curator (Art).—Knowledge of the principles, processes, traditions, and history of art, the conservation, documentation, and exhibition of works of art, the study of individual artists, various schools of art, and the tools and techniques employed in the production of art works.

Museum Curator (Medical).—Knowledge of the methods and techniques used to preserve and document specimens of human and animal tissue for use in the study of the cause, treatment, and prevention of human disease and injury, as well as knowledge of the objects, records, and other material related to the science and history of medicine and to the scientists and physicians who have contributed to the development of modern medical knowledge in all of its branches.

Museum Curator (Numismatics).—Knowledge of the history of money and monetary sys-

tems, the methods, techniques, and reference sources for the restoration, preservation, and documentation and exhibition of coins, medals, and related material, and the processes, materials, tools and methods used in the manufacture of numismatic artifacts and objects.

Museum Curator (Philately).—Knowledge of postal history, postage stamps, and related objects and material, of the methods and reference sources related to the preservation, documentation, and exhibition of postage stamps, and of the processes, materials, tools and methods used in the production of stamps.

Museum Curator (Science and Technology).—Knowledge of scientific or engineering principles and the tools, equipment, processes, or products related to the technological and scientific advances of our culture, as well as the history of the men, machines and events which have shaped these advances, and the methods of preserving, restoring, documenting, and exhibiting related artifacts.

Museum Curator (other subject matter).—Knowledge of the principles, history, and artifacts or specimens related to the subject matter of the museum for which application is made. (Note: Because of the wide variety of subject matter which may be applicable under this specialization, the provisions for selective placement may be used for applicants showing specific or unique patterns of knowledge and experience.)

Staff Curator (Museum Management).—Knowledge of museum methods and techniques including cataloging and indexing systems, restoration and conservation techniques, and preservation and storage methods; familiarity with the fields of knowledge covered by the museum (or museums) including taxonomic systems, history and/or theory of the subject matter, and literature and reference sources of the field; and ability to explore and interpret the field through the study, understanding, and exhibition of its objects or specimens.

Staff Curator (Museum Design).—Knowledge of educational techniques involving the use of objects, as evidenced by and applied through sustained creativity and imagination in relation to the final effect of exhibits; familiarity with the field of knowledge covered by the museum (or museums) including the methods of classification of museum objects, the history and/or theories of the subject matter, and the literature and reference sources of the field; and ability to interpret the field through the study, understanding, and exhibition of its objects or specimens.

BASIC REQUIREMENTS FOR ALL GRADES

Candidates must show that they have successfully completed one of the following:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's degree with major study in museum work or in an applicable subject-matter field.

B. Four years of experience, or education and experience, that provided knowledge and ability comparable to that normally acquired through the successful completion of the 4-year course of study described in paragraph A. Acceptable experience may have been gained in a museum or other type of research organization, in a variety of scholarly pursuits including teaching, writing, or study in an appropriate field, or in other types of professional or technical occupations provided it has provided the requisite knowledge.

GS–5.—The basic requirements which apply to all grades are fully qualifying for GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must had had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have provided the subject-matter knowledge appropriate for the specialty involved.

This experience or education must have

equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	Minimum amount of professional experience in appropriate subject-matter fields (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	Minimum amount or level of education in appropriate subject-matter fields
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily research. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

ACCEPTABLE EXPERIENCE

Experience gained in temporary or part-time jobs or in volunteer activities, amateur experience with private collections, experience on special research or writing projects, teaching experience, or any other experience which has provided the required professional knowledge of the subject matter and discloses ability and aptitude for work with the collection, may be evaluated as acceptable in meeting the requirements for experience.

SPECIAL PLACEMENT PROVISIONS

The experience and education which might be expected to develop acceptable qualifications for positions in this series spread over wide, and often unconventional patterns. On the other hand, most positions in the series require great specificity in the knowledge and abilities of successful incumbents. Because of these factors, certification for any job in this series may be limited to those competitors who show evidence of particular qualifications which are specifically applicable to the position involved.

BASIS OF RATING

Competitors will be rated on a scale of 100, on the extent and quality of their experience, education, and training relevant to the duties of the position.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

MUSEUM TECHNICIAN AND SPECIALIST SERIES

Museum Aid GS–2/4
Museum Technician GS–5/7
Museum Specialist GS–9/12

Description of work

Incumbents of these positions work in museums where they provide nonprofessional technical and specialized assistance to professional employees such as museum curators, museum managers, or research scientists or historians. Positions in this series constitute what is essentially a support occupation, and—especially at the upper grades—the work is highly specialized.

Duties in positions in the lower levels of this series include such tasks as (1) handling, cleaning, labeling, storing, and packing the various types of material in museum collections; (2) preparation of simple preservative solutions and the inspection of containers of preservative material to insure strength, etc.; (3) following simple clerical or laboratory procedures; (4) using simple hand tools or simple heavy lifting machinery.

In the middle grade levels, assignments typically include the acquisition, identification, and cataloging of museum collection material, docent duties, and research assistant responsibilities frequently related to the restoration and preservation of valuable or rare artifacts or specimens in the museum collection.

Positions in the upper levels are characterized by a strict specialization pattern, first within the subject area of the museum or collection where located (such as American history, numismatics, geology, archeology, medicine) and second by the basic functional activities of museums (such as management of the collection; conservation of museum objects). Incumbents of such positions are expected to develop a high degree of specialized expertise within the subject-matter functional area of assignment.

For more detailed discussion of work performed in this series, see the classification standard for the GS–046–0 series.

Experience and education requirements

Applicants must meet the experience requirements specified below. The specified amount of experience will not in itself be accepted as proof of qualification for a position. The applicant's record of experience, education, and/or training must show that he has the ability to perform completely the duties of the position.

Grade	*General experience (years)*	*Specialized experience (years)*	*Total (years)*
GS–2	½	None	½
GS–3	1	None	1
GS–4	2	None	2
GS–5	3	None	3
GS–7	3	1	4
GS–9	3	2	5
GS–11 and 12	3	3	6

Specialized experience in excess of that called for may be credited toward the general experience requirement.

General experience: Acceptable general experience must have provided the applicant with knowledge of and practice in the particular tools, techniques, procedures, and methods necessary to the operation of a museum or to the handling, storage, care, and protection of a museum collection including the attendant recordkeeping, and with lay familiarity and understanding of the science or history represented by the museum.

Such experience is typically acquired through work in a museum similar to that where the position occurs. However, experience in other types of organizations may be acceptable, providing it has included work which indicates a knowledge of procedures, records, storage and display methods, and classification systems typical in the handling of museum collections, and provides the necessary general knowledge related to the subject matter of the museum.

Specialized experience: Acceptable specialized experience must have included training and practice in the methods and techniques necessary to the preservation, restoration, and conservation of collections of museum material related to the particular subject-matter specialization of the position for which application is

made. Subject-matter specializations are as follows:

Aeronautics: Collections of aircraft and other objects related to the history of the science of aeronautics.

Anthropology: Collections of the material remains of past human life and activities, such as human fossils, relics, or artifacts.

Art: Collections of works of art, both fine arts and decorative arts, including paintings, sculpture, ceramics and glass, furniture and art objects in many other media.

Geology: Collections of specimens of organic and inorganic materials which treat of the history of the earth and its life as recorded in rocks, fossils, etc.

History: Collections of objects and memorabilia which relate to historical events and to the persons who figure prominently in them.

Natural science: Collections of specimens related to one or more of the natural sciences not elsewhere covered by a specialization.

Technology: Collections of objects, specimens, and material which pertain to technological and scientific advances of our culture.

Zoology: Collections of animal specimens covering the classes, groups, phyla, genera, and species comprising vertebrate and invertebrate animals.

Level of required experience

For grades GS–3 through GS–5, six months of the required *general* experience must have been of a level of difficulty comparable to that of the next lower grade in the Federal service.

→For grades GS–7 through GS–11, at least six months of the required specialized experience must have been of a level of difficulty comparable to the next lower grade or at least one year of the required specialized experience must have been of a level of difficulty comparable to the second lower grade.

For grades GS–12 and above, at least one year of the required specialized experience must have been of a level of difficulty comparable to the next lower grade.←

Substitution of education for experience

For grades GS–2 and GS–3 the successful completion of a full 4-year or senior high school curriculum may be substituted for six months of the required general experience.

For all grades, successfully completed undergraduate study in an accredited college or university which averaged at least six semester hours per year in appropriate history or scientific subjects may be substituted for the required general experience on a basis of one year schooling for nine months of experience.

Successfully completed graduate study in an accredited college or university in an appropriate related field may be substituted for up to one year of the required specialized experience on a year-for-year basis.

Other requirements

Written examination: Competitors for grades GS–2 and GS–3 are required to take a written examination in the following areas:

1. Name and number comparison
2. Word meaning
3. Coding
4. Spatial perception
5. Finger dexterity

NOTE: No written examination is required for positions at GS–4 and above.

Basis of rating: Ratings in the written examination will be based on a scale of 100. To pass the written test, competitors must attain a rating of at least 70.

For GS–4 and above candidates will be rated on a scale of 100, on the extent and quality of their education, experience and training relevant to the duties of the position. Such ratings will be based on information in the application and upon any corroborative evidence the Civil Service Commission may secure.

Physical requirements: See Part II, Physical Requirements, paragraph 4. In addition, some positions will require the ability to distinguish either basic or shades of color. Applicants must also possess emotional and mental stability.

Illustrator GS–5/12
Medical Illustrator GS–7/12
Scientific Illustrator GS–7/12
Technical Equipment Illustrator GS–7/12

DESCRIPTION OF WORK

Illustrators perform the duties described in the benchmark descriptions of the classification standard for the Illustrating Series (GS–1020). They plan, lay out, and execute illustrations in black-and-white or color. They draw either freehand or with the use of drawing instruments, using art media such as pen, pencil, tempera, oils, or air brush. Some illustrators make line drawings and exploded views of technical equipment or electrical equipment. Some prepare medical and scientific illustrations and some retouch photographs. Typical positions at each grade level are described in the benchmark descriptions.

The classification standard should be used as a guide in evaluating the level of experience a candidate has gained outside the Federal government.

BASIC REQUIREMENTS FOR ALL GRADES

Candidates for all grade levels must have successfully completed the basic requirements specified under either A, B, or C:

A. A 4-year college course leading to a bachelor's degree in drawing, painting, or art in an accredited college or university; OR a 4-year course of study in an accredited art institute or college which has included an average of 6 semester hours per year in drawing, painting, or art.

B. Three years of progressively responsible experience in illustrating, painting, or drawing that has required artistic ability and has demonstrated the ability to draw, ink, letter, color, or shade illustrations, charts, maps, diagrams, or posters.

C. Any equivalent combination of education and experience as defined in A and B above. A one-year course of study described in A is equivalent to nine months of the experience described in B.

QUALIFYING EXPERIENCE

Qualifying experience for illustrator positions must have involved preparation of graphic presentations of objects, facts, or ideas requiring the use of art media and artistic ability. Experience in producing relatively simple illustrations by using basic techniques and materials is work at a level of difficulty which may qualify for positions at the lower grade levels. To be acceptable at the higher grade levels, experience must demonstrate ability to design, plan, and produce illustrations of different subjects in a variety of styles and techniques.

The experience for these positions may have been gained by working as a commercial artist or an illustrator in the fields of public information, exhibits, advertising, or publishing. It may also have been gained by working as an illustrator of technical or scientific equipment or of entomological, biological, medical, or other similar material.

The following kinds of experience are qualifying for illustrating work *only* when pictorial or illustrative presentation requiring artistic ability has been involved.

1. Experience as an engineering, cartographic, or statistical draftsman.
2. Experience as an architect.
3. Experience in the planning or construction of exhibits and models.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

To be eligible for a position at grades GS–7 through GS–11, the candidate must have had at least *one year* of experience at a level of difficulty comparable to the second lower grade or six months at the next lower grade in the Federal service. Candidates for positions at grades GS–12 and above must have had at least one

[1] This standard has been approved by the Administrator of Veterans' Affairs for use within the Department of Medicine and Surgery of the Veterans Administration under the provisions of Section 4105, Title 38, U.S.C.

year of experience at a level of difficulty comparable to the next lower grade in the Federal service.

For positions requiring basic subject-matter knowledge in medicine, science, or technical equipment, 15 semester hours of study in an accredited college or university in an appropriate subject-matter field such as biology, chemistry, engineering, etc., will be considered evidence of the required subject-matter knowledge. The equivalent of 15 semester hours of the appropriate subject-matter knowledge gained through vocational or educational training above the high school level at a public, private, or armed forces school in such fields as physician's assistant, nursing, physical therapy, laboratory technology, or technical equipment maintenance and repair will also be considered as evidence of possession of the required subject-matter knowledge. A year of illustrating experience in the appropriate subject-matter field will be considered evidence of possession of the basic subject-matter knowledge required for these positions.

Candidates who have no experience may qualify for grade GS–7 if they have one full academic year of graduate education in appropriate directly related fields such as (1) studio-art which included illustrating or painting and drawing, or (2) medical illustration.

Candidates who complete all requirements for a master's or an equivalent degree, or two full academic years of graduate education which is obtained in an accredited school of medical illustration are considered to be qualified for GS–9 positions in the medical specialization.

QUALITY OF EDUCATION AND EXPERIENCE

Because artistic and creative ability are so necessary to successful illustration work, possession of the training or length of experience required will not of itself be accepted as proof of possession of qualifications. The candidate's record of experience and training must show the ability to perform the work of the position.

The candidates' records of experience and education must clearly indicate that they possess knowledges, skills, and abilities of the kinds listed below. Candidates need not show mastery of *all* the knowledges, skills, or abilities listed; however, all candidates will be evaluated to determine whether they possess the knowledges, skills, and abilities at the level required to perform the duties of the jobs for which they are being considered.

REQUIRED KNOWLEDGES, SKILLS, AND ABILITIES

1. Artistic ability. This includes ability to draw freehand and with instruments.
2. Creative ability. This is the ability to think of an idea to transmit information through pictorial means. It includes the ability to translate ideas (specialized or variety) into visual form.
3. Skill in the use of a variety of art materials and techniques to render acceptable drawings in many styles.
4. Knowledge of the methods and procedures of printing processes to prepare art work for reproduction, such as for publications and projectuals.
5. Ability to work quickly and competently to produce acceptable finished products within available time limits.
6. Knowledge of subject matter as applied to medical, scientific, or technical equipment illustration.
7. Ability to deal successfully with clients, coworkers, and supervisors to plan, coordinate, or advise on work efforts.
8. Ability to work with no more than normal supervision for the level of the work.

SELECTIVE PLACEMENT

Some positions require subject-matter knowledge of a specialized nature (such as heraldry), for which no option has been established because of the relatively small number of such positions. Selective placement is used to fill these positions.

Selective placement from an appropriate general or specialized option is also used to fill positions requiring a specialized knowledge of the techniques of animation illustration.

BASIS OF RATING

Candidates will be rated on a scale of 100 on the basis of the extent and quality of their experience and training as it pertains to the knowledges, skills, and abilities required of an illustrator at each grade level. This rating will be determined from an evaluation of their experience and training as described in their application forms, the quality of art samples, and any additional evidence acquired by the Office of Personnel Management.

No written test is required. All candidates must submit samples of their work for review by a panel of experts in the field of illustration. These samples will be evaluated to determine whether the candidates possess the knowledges, skills, and abilities at the level required to perform the duties of the position.

SUPERVISORY POSITIONS

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X–118 in conjunction with this standard.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to safely and efficiently perform the essential functions of the position. Usable vision, including normal color vision, is required and, depending on the essential duties of a specific position, usable hearing or speech may be required. However, in most cases, a specific physical condition or impairment other than complete loss of vision will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform. Reasonable accommodation may include, but is not limited to: job modification, provision of assistive devices, job restructuring, and/or provision of interpreters for deaf individuals.

INSERVICE PLACEMENT

Guidelines for appraising employee's qualifications and promotion potential are discussed in FPM Supplement 335–1. Inservice placement examining is accomplished more easily than competitive examining because personnel records, employees, and supervisors are available at the installation.

Information is readily developed to determine an employee's eligibility for a job and it is not mandatory that samples be submitted for review. However, it is highly important that the same degree of artistic ability and the same quality of technical skill be demanded for *each* grade as is required in competitive hiring at the same level. The criteria in the classification standard, and in particular, the benchmark position descriptions, may be helpful in evaluating the level of illustrating experience a candidate has gained. When candidates are being evaluated by merit promotion panels, it is advisable to require samples of the work and to have the evaluation made by a panel of individuals who are technically qualified to judge the quality of the art samples. The evaluation should be made in accordance with standards which are applied uniformly to all candidates.

The evaluation of a candidate for positions in the series covered by this standard should focus on those knowledges, skills, and abilities which indicate the candidate's ability to perform successfully the duties of the positions. The actual skills and abilities needed in each position differ with the organization of the work and the type of work performed. Accordingly, the employee's training and experience should be evaluated in terms of the knowledges, skills, and abilities needed for success *in the job to be filled.*

OFFICE DRAFTING SERIES **GS–1021 (p. 1)**

Office Draftsman GS–2/7

Description of work

Office draftsmen supervise or perform drafting in the preparation and revision of charts, diagrams, floor plans, office forms and other means of graphic presentation of statistical, administrative, or related data. Drafting work is done in black-and-white and/or in color, and requires the use of both freehand and mechanical techniques.

Experience requirements

Grade	Total experience (years)
GS–2	½
GS–3	1
GS–4	2
GS–5	3
GS–6	★4★
GS–7	★5★

At least 6 months of the experience required for GS–4 and above must have been office drafting experience acquired at a level equivalent to the next lower grade level in the Federal service. The remainder of the experience required must have been progressively responsible experience in cartographic, architectural, engineering, commercial, or office drafting which has demonstrated the potential ability to perform drafting duties satisfactorily at the grade level of the position applied for.

Substitution of education for experience

a. Successful completion of a full 4-year or senior high school curriculum which has included four ½-year courses, two of them in drafting or mechanical drawing, and the others in drafting, mechanical drawing, art, or mathematics, may be substituted for 6 months of the general experience.

b. Study successfully completed in a resident school above the high school level with major study in fields providing drafting knowledge and skill may be substituted for required experience on the basis of 1 academic year of substantially full-time study for 1 year of experience up to a maximum of 2 years of experience. Two years of such education will satisfy the requirements for the GS–4 grade level, including the 6 months of office drafting experience required. Each academic year of study must have included a minimum of 6 semester hours per year in appropriate subjects, or the equivalent. Examples of fields for which study may be credited include drafting, drawing, art, design, illustration, architecture, and engineering. A minimum of 3 ★semester hours each year★ must be in drafting courses.

("School above the high school level" means a business or commercial school or college, a junior college, or a college or university for which high school graduation or the equivalent is prerequisite.

("Substantially full-time study" in the case of business and commercial schools is the equivalent of at least 20 classroom hours of instruction per week.)

Written test required for GS–2 and GS–3 positions

Applicants for positions at these levels are required to pass a *written test.* The test will cover general abilities and specific abilities required in the performance of office drafting work. These applicants will be rated according to their scores on this test.

Samples of work required for positions at GS–4 and above

Applicants for positions at GS–4 and above are required to submit at least three and no more than five samples of their own office drafting work that show their skill in graphic presentation.

The following knowledges, abilities, and personal characteristics are required for successful performance of office drafting duties and should be evaluated for applicants for positions at GS–4 and above:

1. Skill in the use of mechanical and freehand drafting techniques. This includes such aspects as neatness, uniformity in line width, and proper spacing.

2. Ability to make graphic presentations that portray information effectively and are visually appealing. This includes layout and scale, the ability to visualize how drafting work will look when enlarged or reduced photographically, the ability to use color, and knowledge of reproduction methods.

3. Ability to analyze nontechnical aspects of statistical, administrative, and related data, and determine what type of chart, line chart, bar chart, pie chart, etc., is most appropriate for presenting the information graphically.

4. Ability to draft a variety of types of graphic presentations.

5. Ability to meet and deal with people requesting drafting work who must provide the draftsman with data. This includes the ability to find out how the requester wants the job done, to suggest improved ways of doing it, and, in the case of nontechnical data, to advise requesters who are not familiar with graphic presentation of data on the most effective way to have the job done.

6. Ability to perform work of reasonably high quality under time pressure.

7. Ability to cooperate with others working in the information and arts area on projects that are the products of the joint efforts of people from one or more occupations in addition to office drafting, such as illustrating visual information, or the subject-matter area of the data being drafted.

8. For positions requiring direction of the work of others, ability to coordinate and supervise the work of other office draftsmen.

Information to be evaluated for applicants for positions at GS–4 and above

The following information concerning the work of applicants for positions at GS–4 and above indicates the extent to which their work demonstrates that they possess the knowledges and skills required for office drafting positions:

1. Variety in types of graphic presentations worked on: Placing emphasis on (*a*) the graphic aspects, i.e., type of graphic presentations worked on, such as flow, bar, line, organizational charts, etc., rather than on the type of information or data portrayed; and (*b*) extent of work done by applicant, i.e., revision of graphic presentations done previously, or portions or all of drafting work required for graphic presentations worked on.

2. Guidelines provided for carrying out assignments, whether they are rough layouts, graphic presentations drafted previously, written instructions or standards, or verbal instructions; extent to which applicant has been responsible for determination of appropriate type of graphic presentation.

3. Extent of responsibility, if any, for coordination of drafting work with people in related fields, such as visual information specialists, illustrators, editorial people, printing representatives, etc.

4. Supervision received, i.e., whether the applicant received close supervision, general supervision, or worked independently.

5. Names and addresses of one or two persons closely associated with the applicant's work, from whom additional information can be obtained.

Reference to the classification standard for the Office Drafting Series, GS–1021, will be especially helpful in determining the level of difficulty of assignments performed by applicants for positions at GS–4 and above. The following descriptions of experience indicate the quality of experience to be required at each grade level; they parallel the duties given in the classification standard and are qualifying for the next higher grade level:

GS–3 level—experience showing the ability to draft a few types of graphic presentations of moderate difficulty on a recurring basis with specific guidelines.

GS–4 level—experience showing the ability to draft a wide variety of types of graphic presentations with general guidelines.

GS–5 level—experience showing the ability to draft graphic presentations for which there are no precedents, to set up standards of chart design or graphic presentation for publications, and to coordinate drafting work with others in

the information and arts area with very general instructions.

Applicants who have increased their drafting knowledges and skills through extra courses in the visual information and arts fields should be given limited additional credit for such courses, commensurate with the nature and extent of the course, in the evaluation of the quality of their experience.

Basis of rating

Applicants for grades GS–2 and GS–3 who possess the required experience or education will be rated and ranked on the basis of the written test on a scale of 70 to 100. Applicants for grades GS–4 and above will be rated and ranked on a scale of 70 to 100 based on the quality of their work samples and on the extent and quality of their experience and training. Such ratings will be based on the applicants' statements in their applications and upon any additional evidence secured by the Commission.

Confidential inquiries may be made of persons who are qualified to evaluate the individual applicants for these positions as an additional means of determining whether the applicant's experience is of the quality sought. References will be asked to evaluate candidates on characteristics necessary for job success in these positions. Candidates will be rated ineligible where information is received which indicates that the applicant does not possess the necessary qualifications.

Physical requirements

See part II, Physical Requirements, paragraph 2.

Public Affairs Specialists, GS–5/15
Supervisory Public Affairs Specialists, GS–11/15

DESCRIPTION OF WORK

This series includes positions responsible for administering, supervising, or performing work involved in establishing and maintaining mutual communication between Federal agencies and the general public and various other pertinent public including internal or external, foreign or domestic audiences. Positions in this series advise agency management on policy formulation and the potential public reaction to proposed policy, and identify and carry out the public communication requirements inherent in disseminating policy decisions. The work involves identifying communication needs and developing informational materials that inform appropriate public of the agency's policies, programs, services, and activities, and plan, execute, and evaluate the effectiveness of information and communication programs in furthering agency goals. Work in the series requires skills in written and oral communication, analysis, and interpersonal relations.

For further information about the nature of work performed by employees in the Public Affairs Series, see the position classification standard. The criteria in the classification standard, and especially the benchmark descriptions, provide illustrations of representative duties of this occupation and should prove helpful in evaluating the level of experience a candidate has gained outside of the Federal Government, or in any other position outside of the General Schedule.

MINIMUM REQUIREMENTS

Minimum requirements for the various grade levels in this series are presented in tabular format as indicated below:

Grade level:	*Requirements*
GS–5	Table 1, p. 3.
GS–7	Table 1, p. 3.
GS–9	Table 2, p. 4.
GS–11	Table 3, p. 5.
GS–12 and above	Table 4, p. 6.

NOTE: The tables identified above present the requirements for this series in terms of the skills required to perform the work of the level indicated. While the requirements are depicted as skills in four distinct areas, the underlying knowledge to practice the skill is presumed to exist and is inferred, along with the skill, from the examples shown in the tables.

SELECTIVE AND QUALITY RANKING FACTORS

The Public Affairs Series covers a broad and varied spectrum of positions some of which may require specialized knowledges and skills not identified in this standard. In appropriate cases, selective factors may be constructed by agencies to indicate those knowledges and skills considered *essential* in producing a list of eligibles qualified to perform the duties of the position satisfactorily. The selective factors requested for a position should represent the *basic* qualifications for the job and must be demonstrably job-related and reflected in the duties and responsibilities assigned to the position. Selective factors must represent knowledges or skills required of a candidate at the time of entry into a position or those which could not be learned without a significant amount of training. Examples of selective factors that may be required in public affairs positions, at any grade level, include a requirement for fluency in Spanish, German, Japanese, or other language, except English.

For some positions in this series, especially at the GS–9 and above levels, agencies may request the use of specific quality ranking factors in identifying the *better qualified* candidates from a group of persons basically qualified for a position. Properly identified and justified quality ranking factors should present a qualifications pattern which would most likely assure superior performance in a position.

[1] Supersedes and replaces the standard for the Public Information Series, GS–1081, issued in December 1968 and June 1970.

Quality ranking factors must also be directly related to the duties and responsibilities of the position and shown to be predictive of superior performance. Examples of quality ranking factors may include knowledge of a functional program, knowledge and skill in using a particular information medium such as television or magazines, or knowledge of the structure and functioning of a specialized group.

Additional guidance concerning the evaluation and documentation of selective and quality ranking factors is provided in FPM Chapter 332, Subchapter 4 and Appendix B.

PHYSICAL REQUIREMENTS—ALL LEVELS

Applicants and employees must be physically and mentally able to perform efficiently the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in the Federal Personnel Manual (FPM) Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

QUALITY OF EXPERIENCE

For each grade, creditable experience must have equipped applicants with the knowledge and skills to perform fully the duties of the position being sought.

Applicants must demonstrate progressively responsible experience of a level of difficulty and responsibility that has provided them with the capability to perform duties at the grade level of the position for which application is made. The appropriate *level* of experience is normally demonstrated by satisfactory performance of the full range of duties and responsibilities of a position at, or equivalent to, the next lower grade level of the General Schedule in the normal line of progression to the position being filled. For example, in a line of progression of GS–5, 7, 9, 11, 12, experience at or equivalent to GS–9 is required for a GS–11 position. Levels of responsibility and difficulty are discussed in the position classification standard for this series. (See also 5 C.F.R. 300, Subpart F.)

SUPERVISORY POSITIONS

Use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X–118 in conjunction with this standard.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For those positions in which operating a motor vehicle is essential to the efficient performance of the work, applicants are required to:

—possess, or obtain within 30 days of employment, a valid State driver's license, and

—qualify after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency. (See FPM Chapter 930.)

Table 1. Requirements for GS–5/7.

Applicants for GS–5 positions must meet the requirements of A, B, or C below:

A. Three years of experience in an occupational field where the work required demonstrated possession of the skills necessary to learn and perform the work characteristic of this series as indicated below.

OR

B. Successful completion of a full 4 year course in an accredited college or university leading to a bachelor's degree in any field, provided that the education demonstrated possession of the skills indicated below.

OR

C. Any equivalent combination of education and experience defined in A and B. In combining education with experience, an academic year of study is considered equivalent to 9 months of experience.

The total creditable education, experience or combination described in A, B, or C above *must* indicate possession of the following skills:

Written Communication Skill	Oral Communication Skill	Interpersonal Relations Skill	Analytical Skill
This requires skill in imparting factual information in writing. It involves producing written information so that the intended audience understands the material presented.	This requires skill in conveying information orally. It involves transmitting information by spoken word so that the intended audience understands the presentation.	This requires skill in dealing with people effectively. It includes avoiding offense in interacting with others.	This requires skill in interpreting data to arrive at conclusions.
This skill may be indicated by: a. work experience that required presenting analyses of factual material in narrative form such as writing news reports or expository magazine articles; or similarly related experience; or	This skill may be indicated by: a. work experience that required explaining and interpreting facts orally such as conducting tours of facilities and explaining the work performed by the organization; or similarly related experience; or	This skill may be indicated by: a. work experience that required interacting closely with people in resolving routine problems such as providing assistance to clients of industrial or service organizations; or similarly related experience; or	This skill may be indicated by: a. work experience that involved analyzing data, and developing conclusions based on factual material such as drawing conclusions from interviews in market research activities; or similarly related experience; or
b. successful completion of an undergraduate course such as journalism, radio and television, or similar courses; or	b. successful completion of an undergraduate course such as speech or public speaking or similar courses; or	b. successful completion of an undergraduate course such as group dynamics, interviewing techniques, or similar courses; or	b. successful completion of an undergraduate course such as opinion analysis techniques or questionnaire design or similar courses; or
c. other equivalent demonstration of written communication skill.	c. other equivalent demonstration of oral communication skill.	c. other equivalent demonstration of interpersonal relations skill.	c. other equivalent demonstration of analytical skill.

Applicants for GS–7 positions must meet the requirements of A, B, or C below:

A. Progressively responsible experience which demonstrated possession of skills required to perform work of the position being filled.

OR

B. Superior academic achievement as defined in Part II, Section II of Handbook X–118.

OR

C. Successful completion of one full year of graduate education in a field directly related tothe position being filled such as journalism, advertising, creative writing or similarly related fields.

The total creditable experience or education described in A, B, or C above *must* indicate possession of all the skills required for GS–5 above. However, possession of advanced levels of GS–5 skills are more clearly demonstrated by concrete work accomplishments, post-graduate education achievement, or unusual scholarship.

Table 2. Requirements for GS-9.

Applicants for GS-9 positions must meet the requirements of A or B below:

A. Progressively responsible experience which demonstrated possession of the skills required by the position being filled.

OR

B. Successful completion of two full academic years of graduate education or all requirements for a master's or equivalent degree in a field directly related to the position being filled such as journalism, creative writing, communication, advertising, or similarly related fields.

The total creditable experience or education described in A or B above *must* indicate possession of the following skills:

Written Communication Skill	Oral Communication Skill	Interpersonal Relations Skill	Analytical Skill
This requires skill in imparting complex information in writing using a variety of formats. It includes producing written information for audiences with different levels of understanding so that all types of audiences understand the material.	This requires skill in conveying complex information orally using a variety of presentation methods. It includes transmitting information by spoken word to audiences with differing levels of understanding so that all types of audiences understand the material.	This requires skill in working with people having similar interests to attain mutually positive ends in an effective manner. It includes maintaining such relationships and dealing with potentially unpleasant situations in a manner such as not to produce antagonism.	This requires skill in drawing appropriate conclusions from complex information. It includes determining the sources of information, gathering, evaluating, and interpreting data to arrive at conclusions.
This skill may be indicated by: a. work experience that involved writing assignments using various formats such as substantive editing or developing advertising copy; or similarly related experience; or b. successful completion of graduate courses such as journalism, communication, or similar areas; or c. other equivalent demonstration of written communication skill.	This skill may be indicated by: a. work experience requiring considerable oral expression techniques such as conducting in-depth interviews to gather facts; or similarly related experience; or b. successful completion of graduate courses such as speech or similar areas; or c. other equivalent demonstration of oral communication skill.	This skill may be indicated by: a. work experience that required working with others to accomplish a goal such as directing a project involving peers; or similarly related experience; or b. successful completion of graduate courses such as counseling or similar areas; or c. other equivalent demonstration of interpersonal relations skill.	This skill may be indicated by: a. work experience that required analysis of complex or involved data such as analyzing market potential or reaction or program effectiveness; or similarly related experience; or b. successful completion of graduate courses such as marketing or similar areas; or c. other equivalent demonstration of analytical skill.

Table 3. Requirements for GS–11.

Applicants for GS–11 positions must show progressively responsible experience which demonstrated possession of the skills required by the position being filled. This experience *must* indicate possession of the following skills:

Written Communication Skill	Oral Communication Skill	Interpersonal Relations Skill	Analytical Skill
This requires skill in producing written material to achieve understanding of various points of view by others. It includes the development of defined strategies to present concepts, ideas, or positions in a clear and logical manner so that audiences with varying levels of understanding comprehend the material presented. This skill may be indicated by: work experience involving the writing of materials to motivate others to follow a certain course or accept a concept such as editorial writing; preparing articles, brochures, and the like to inform people of the benefits of practicing a certain health regimen; or similarly related experience.	This requires skill in presenting concepts or positions orally to acheive understanding of a point of view. It includes developing and transmitting concepts, ideas, and positions in a clear and logical manner, in a structured setting, so that audiences with varying levels of understanding comprehend the views presented. This skill may be indicated by: work experience that involved instructing others to understand information which was presented in a formal or clearly structured setting such as classroom teaching or conducting training courses or community organizing activities; or similarly related experience.	This requires skill in establishing and maintaining effective working relationships with people having different interests. It includes working with persons having different interests and perspectives or are indifferent to a position, or point of view in attaining a mutually beneficial objective. This skill may be indicated by: work experience that involved performing consulting duties to a program function where the applicant used this skill to demonstrate to others the benefits of the services provided such as program analysis; or management analysis; or similarly related experience.	This requires skill in drawing appropriate conclusions from varied and complex data. It includes identifying sources of data useful in problem solving situations, employing information gathering techniques and, evaluating, interpreting, and synthesizing information to arrive at conclusions and develop basic recommendations. This skill may be indicated by: work experience in any of a number of staff positions which required analyzing basic functions and suggesting ways to improve operation such as marketing research; or program analysis; or similarly related experience.

Table 4. Requirements for GS–12 and above.

Applicants for positions at GS–12 and above must show progressively responsible experience which demonstrated possession of the skills required by the position being filled. This experience *must* indicate possession of the following skills:

Written Communication Skill	Oral Communication Skill	Interpersonal Relations Skill	Analytical Skill
This requires skill in creating written materials using many methods to achieve understanding of a point of view. It includes the origination and full development of concepts and strategies or plans for presenting a variety of subjects using multi-communication techniques to achieve understanding among audiences with varying levels of comprehension of or indifference to the material presented.	This requires skill in explaining points of view in an unstructured setting. It includes making impromptu presentations to audiences indifferent or opposed to a position and to explain and interpret the position rationally and effectively, adapting the presentation to meet unexpected reactions.	This requires skill in dealing with people having different interests and positions. It includes establishing and maintaining effective working relationships with others representing opposing points of view or different interests, achieving moderation of opposing views by coherently presenting an issue, and gaining understanding of the position.	This requires skill in drawing appropriate conclusions from conflicting data. It includes determining the kinds of information needed and developing new and specific ways of gathering, collecting, and evaluating the data and presenting conclusions and recommendations giving consideration to the various conflicting information and specifying reasons for acceptance or rejection.
This skill may be indicated by: work experience involving the development of media campaigns where duties included furnishing information about the social or economic values that the institution fosters and the importance of its activities to the nation; or similarly related experience.	This skill may be indicated by: work experience that required developing on-the-spot presentations to explain issues that are highly sensitive or controversial such as positions serving as spokespersons at news conferences for organizations; contract negotiating; or similarly related experience.	This skill may be indicated by: work experience that involved effective use of diplomacy in situations where persons strenuously defended their positions and the applicant relied on tactful presentations to encourage persons of opposing interests to consider more fully a position; or similarly related experiences.	This skill may be indicated by: work experience in any of the social sciences that involved performing research on behavioral topics; investigative work that required uncovering conflicting facts and making a judgment as to their validity and drawing conclusions from them; or similarly related experience.

LANGUAGE SPECIALIST SERIES*

Language Specialist, GS–5/15
Translator, GS–5/15
Interpreter, GS–5/15

DESCRIPTION OF WORK

Candidates appointed to these positions translate and/or interpret material from other languages into English or from English into the other languages. In addition, they perform such duties as: (a) reviewing translated material for accuracy; (b) literature researching of subject areas; (c) screening publications for material to translate; (d) writing memoranda of interpreting sessions; and (e) giving advice on the culture, political situation, or geography of other countries. Translations range in difficulty from those of uncomplicated, nontechnical material, such as simple correspondence, to highly complicated legal, scientific, or technical material such as reports, research papers, and agreements. Interpretations range in difficulty from uncomplicated material, such as passing on instructions to voters, to highly technical, scientific, and legal material, such as that encountered at political negotiations or military conferences.

LANGUAGE AND EXPERIENCE REQUIREMENTS

For Grade GS–5

Candidates must have at least the English and foreign language knowledge required to perform trainee translating assignments and/or to perform simple interpreting. A more detailed description of knowledges required for entry level positions can be found in the Language Specialist classification standard at the 750 point level under Factor 1, Knowledge Required by the Position.

Means of Demonstrating Required Knowledges, Skills, and Abilities

Knowledge of the foreign language and English may be demonstrated in any one of the following ways:

A. Three years of experience in translating, interpreting, or other work requiring the use of English and the other language;

OR

B. Three years of a combination of work experience (that required English and the other language) and training at the Defense Language Institute, Foreign Service Institute, or comparable training;

OR

C. A full four-year course in an accredited English-speaking college or university with major study in the foreign language;

OR

D. A full four-year course in an accredited college or university with major study in translating or interpreting where English and the foreign language are prerequisites;

OR

E. A full four-year course in an accredited college or university in the other country with major study in English;

OR

F. Any time equivalent combination of education/experience listed below under I. English, *plus* any time equivalent combination of education/experience listed under II. Foreign Language. One full academic year in an accredited college or university is equivalent to nine months of work experience.

I. English

1. Three years of work experience requiring considerable use of English.
2. A full four-year course in an accredited college or university leading to a bachelor's degree in any subject where the instruction was primarily in English.
3. Experience in speaking English where English was the second language in the high school system of a non-English speaking country.

II. Foreign Language

1. Experience in speaking or writing in the language because it was the language (a) in which the applicant was educated (through the high school level), (b) of the household, or (c) in which the applicant

*This standard supersedes the standard for the Language Specialist Series, GS–1040, issued in March 1960.

has worked for a long period of time, including service in the Armed Forces.

2. A full four-year course in an accredited college or university leading to a bachelor's degree in a country where the foreign language required for the position to be filled is the native language.

The following are *examples* of work which may have provided the required knowledge and skills:

a. Work as a translator in the required language(s);
b. Work as an interpreter in the required language(s);
c. Work as a librarian or information specialist where the foreign language was required to make abstracts, screen, index, and scan material;
d. Work as a writer or editor of material in the foreign language;
e. Work as a travel guide or travel tour leader where the foreign language was required;
f. Work in an organization, such as the Peace Corps, where bilingual ability (knowledge of English and of the foreign language) was required to perform the work;
g. Work in an international organization such as the World Bank or the United Nations, in a position requiring use of the foreign language;
h. Work in a business or other organization which required bilingual ability (knowledge of English and the foreign language);
i. Work as a professor, teacher, or instructor of high school or college level foreign language courses; and
j. Intelligence-type work that required the use of the foreign language.

For grade GS–7 and above

In addition to the requirements stated for GS–5, candidates must have experience in preparing written translations or in interpreting. This experience should have demonstrated:

a. Knowledge of the culture of the other country, including customs and history (as demonstrated by translations or interpretations that are idiomatic and that convey the correct tone and emotion);
b. Skill in performing literature research in subjects to be translated or interpreted;
c. Skill in writing clear, grammatically correct material, or skill in speaking clearly, concisely, and correctly;

AND, for some positions;

d. Skill in dealing tactfully and effectively with people at various political and social levels; and
e. Knowledge of the United States, its people, and governmental institutions.

SUBSTITUTION OF EDUCATION

Successful completion of one year of full-time graduate study in an accredited college or university at which English is the primary language with major study in the foreign language of the position to be filled meets all the requirements for GS–7.

Successful completion of one year of full-time graduate study in an accredited college or university at which English is the primary language, with major study in translating and interpreting in the foreign language meets all the requirements for GS–7.

Successful completion of all requirements for a master's, or equivalent degree, or two years of full-time graduate study in an accredited college or university with major study in either the foreign language of the position to be filled, in translating, or in interpreting in the language meets all the requirements for GS–9.

Successful completion of all requirements for a doctoral or equivalent degree or three years of full-time graduate study in either the foreign language of the position to be filled, in translating, or interpreting in the language meets all the requirements for GS–11 provided the candidate possesses the essential knowledges, skills, and abilities to perform the work.

The superior academic achievement standard is not appropriate for these positions.

QUALITY OF EXPERIENCE

For grades through GS–11, at least six months of the required experience must have been at a level of difficulty comparable to that of the next lower grade level in the Federal service or one year comparable to the second lower grade level in the Federal service. For grades GS–12 and above, at least one year of the required experience must have been at a level of difficulty comparable to the next lower grade in the Federal service. For assistance in determining the level of difficulty of the applicant's relevant experience, refer to the position classification standard for the Language Specialist Series, GS–1040, or other related position classification standards.

GUIDE FOR EVALUATING CANDIDATES

For positions at the GS–5 grade level, experience in translating or interpreting should normally be ranked highest quality. For positions above the GS–5 grade level, experience in translating or interpreting in the same subject area as that of the position to be filled should normally be ranked highest quality. Experience in work which required reading, writing, or speaking the language, but that did not require translating or interpreting, should be ranked at lower levels or as nonqualifying, depending upon the extent or relatedness and the needs of the position to be filled. For language specialist positions, experience in both translating and interpreting should be ranked higher than experience in only one of these specializations.

Education, agency training, or other training which is directly related to the particular requirements of the positions to be filled, should be ranked higher than other qualifying education. For example, training in the language which involved the same subject areas as those of the position to be filled should be rated higher than coursework in a college or university in the basic language. Major study in translation or interpretation in the language should be rated higher than major study designed solely to learn the language.

FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement, describes methods for appraising candidates' qualifications and promotion potential.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for Supervisory Positions in General Schedule Occupations in Part III of Handbook X–118 should be used in conjunction with this standard.

BASIS OF RATING

Applicants will be evaluated and rated on a scale of 100 based on the quality of their experience, education, or training relevant to the duties of the position. The evaluation will be based on information contained in the application and any additional information received by the examining office.

TESTING PROVISIONS

Agencies may test candidates for foreign language proficiency on a pass-fail basis prior to appointment. Agencies must document the connection between the level of proficiency required and the duties of the position to be filled. Material used to test candidates should be material selected from typical work related documents. The level of difficulty should be the same as in assignments normally performed at that grade. The same or equally difficult material should be presented to all applicants for the same position or grade level. The evaluation of the translation or interpretation should be as objective as possible with the agency informing applicants of the specific aspects of the translation or interpretation to be evaluated.

SELECTIVE PLACEMENT

For many positions in this series, different program needs may require specialized background knowledges and skills. For example,

some positions may require knowledge of a specific subject matter area such as aeronautics, oceanography, electronics, and space technology. In filling such positions, consideration will be limited to those candidates whose records show evidence of the required capabilities.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modifications or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

MUSIC SPECIALIST SERIES

Music Specialist GS-5/15

DESCRIPTION OF WORK

Music specialist positions require a thorough knowledge of one or more of the music arts such as vocal or instrumental music; composition, theory and harmony; arranging and orchestration; choral or instrumental conducting; classical or modern dance styles including choreography and notation; or musicology. Some music specialists plan, supervise, administer, or carry out educational, cultural, recreational, or other programs such as creative music clinics or workshops or electronic music experiments, in the field of music. Some music specialists produce, stage, direct or conduct musical productions, concerts, or recitals. Others instruct or serve as specialists in one or more aspects of the music arts such as conducting, composing, or arranging music; interpreting classical, modern, ethnic or cultural dance forms; interpreting choral or instrumental music, or instrumentation. Other music specialists review, evaluate, and act on requests for Federal support and assistance in the field of music. Still others plan and carry out research in the history, forms and methods of music, or music literature.

BASIC REQUIREMENTS FOR ALL GRADES

As a basic requirement, applicants must have education or experience as described under either A, B, or C below:

A. A full 4-year course in an accredited college or university with major study in music; *or*

B. Three years of experience in which the candidate has demonstrated a good knowledge of one or more aspects of music, as well as an overall appreciation and understanding of the field of music, equivalent to that which he would have gained through the education described in A above. This experience may have been gained in such activities as conducting or directing vocal or instrumental groups; composing, arranging, orchestrating, or teaching music; *or*

C. Any equivalent combination of A and B above, provided each year of the education has included at least 6 semester hours of course work appropriate to the field of music. Appropriate education may be substituted for experience on the basis of 1 year of academic study for 9 months of experience.

Education and training in conservatories of music or private instruction and training in the music arts should be carefully evaluated to determine the extent to which it contributes to the candidate's ability to carry out the work of the position. Relevant full-time study of this kind may be counted on a month-for-month basis as general experience.

GS-5.—The basic requirements which apply to all grades are fully qualifying for positions at grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS FOR GRADES GS-7 AND ABOVE

In addition to meeting the basic requirements for GS-5, applicants for higher grades must have the amount and kind of specialized experience described below:

Grade:	Years of specialized experience
GS-7	1
GS-9	2
GS-11/15	3

SPECIALIZED EXPERIENCE

Specialized experience is that which shows that the candidate has:

—Ability to produce, stage, conduct, or direct musical productions, concerts, recitals, or other music events such as music festivals, clinics, or workshops.

—Ability to instruct in, or serve as a specialist in one or more of the music arts such as (1) conducting, composing, arranging, or orchestrating music, (2) interpreting classical, modern, ethnic, or cultural dance

forms, (3) choreography and notation, or (4) interpreting vocal or instrumental music.

This experience may have been gained in such work as:

—Planning, staging, conducting, or directing musical productions, concerts, recitals, or other musical events such as pageants, competitions, or festivals.

—Planning and carrying out a continuing program in music for secondary schools, communities, colleges, universities, civic, cultural, or other musical organizations.

—Managing, administering, conducting, directing, or serving as a specialist for professional music organizations or companies such as: civic symphonies and operas; concert bureaus; choirs, choruses, or other vocal ensembles; Broadway musical productions or national touring companies of professional music groups; or seasonal music festivals.

—Instructing in the principles of conducting, composing, arranging, or orchestrating music; interpreting classical, modern, ethnic, or cultural dance forms; choreography and notation; interpreting vocal or instrumental music; musicology; or music management and administration.

—Planning, establishing, or evaluating a music curriculum for secondary or higher academic levels.

SUBSTITUTION OF EDUCATION FOR SPECIALIZED EXPERIENCE

Full-time graduate education in music may be substituted for experience on the following basis. *This education must have equipped the candidate with the knowledge and ability to perform fully the work of the positions for which he is being considered.*

A. *For 1 year of specialized experience.*—One full year of graduate study in music. (This amount and kind of education meets all the requirements for grade GS–7.)

B. *For 2 years of specialized experience.*—Completion of all the requirements for a master's (or equivalent) degree in music or 2 full years of graduate education in music.

C. *For 3 years of specialized experience.*—Completion of all the requirements for the doctoral degree (Ph. D. or equivalent).

D. *Alternate requirements.*—

1. Superior academic achievement at the baccalaureate level is qualifying at grade GS–7. The pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.
2. A combination of superior academic achievement and 1 year of appropriate specialized experience is qualifying at grade GS–9.

E. *Combinations of specialized experience and graduate education.*—Equivalent combinations of specialized experience and graduate education of the type described above are acceptable at each grade. (Thirty semester hours, or the equivalent part-time graduate education, may be considered to be equal to a full academic year of graduate education.)

QUALITY OF EXPERIENCE

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to the next lower grade, or 1 year comparable to the second lower grade in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to the next lower grade in the Federal service.

This experience or education must have equipped the candidate with the knowledge and ability to fully perform the work of the position for which he is being considered.

BASIS OF RATING

No written test is required. Candidates will be rated on the basis of their education, training, experience, and personal qualifications in

relation to the requirements of the specific position for which they are being considered.

Ratings will be based on the applicant's statements in the application and on any additional evidence that may be received.

SELECTIVE PLACEMENT

Music specialist positions vary significantly in the kinds and combinations of specialized knowledges and skills required. For example, the successful performance of the work of some positions may require one or more of the following:

—Ability to identify the music interests of diverse individuals or groups.

—Ability to stimulate interest and participation in music activities.

—Ability to lead or guide the musical activities of individuals or groups at varying levels of development and with varying degrees of musical skills.

—Ability to plan, supervise, administer, carry out, or evaluate cultural, educational, recreational, or other music programs such as special programs for children or young adults, or music workshops or clinics.

—Ability to direct or conduct musical performances or events such as music competitions or festivals.

—Ability to teach the principles of, or serve as a specialist in, conducting, composing, arranging, or orchestrating music; interpreting classical, modern, ethnic, or cultural dance forms, choreography and notation; interpreting vocal or instrumental music; theory and harmony; interpretation of musical styles; musicology or music literature.

—Ability to serve as a specialist in interpreting classical, modern, ethnic, or cultural dance forms with knowledge of choreography and dance notations.

—Ability to apply a knowledge of the current state of the art, and an understanding of agency program objectives and requirements, in evaluating requests for Federal support or assistance.

For positions with specialized requirements, consideration and selection may be limited to those candidates whose records show evidence of the required capabilities.

QUALIFICATION INQUIRIES

Inquiries, including contacts with applicants' present and former supervisors and associates, may be made to obtain further information concerning applicants' technical and personal qualifications and general suitability for these positions.

INTERVIEW REQUIREMENTS

Skill in interpersonal relationships is vital to success in some music specialist positions. Accordingly, candidates may be required to appear for an employment interview. The purpose of this interview is to permit the evaluation, at firsthand, of the personal qualities that are important to success in these positions.

SUPERVISORY POSITIONS

For supervisory positions see the qualification standards for "Supervisory Positions in General Schedule Occupations" in part III of this handbook.

EVALUATION OF EDUCATION AND EXPERIENCE

Education

The evaluation of education requires particular care. It should take into account both the substance of the course work in music and the breadth and depth of the cultural background provided by the candidate's total course work. Particular attention should be devoted to the extent to which the substance of the course work offered by the candidate has equipped him with the knowledges and skills essential to success in the position to be filled.

Experience

Evaluation of the kind and level of experience offered by candidates requires particular care. It should be based on careful consideration of the knowledges, skills, and abilities offered by the candidate in relation to the specific

requirements of the position to be filled. For example:

—For assignments that involve program planning and management, experience in planning, carrying out, or evaluating cultural, educational, or recreational programs in music is more valuable than experience as an instructor or a specialist in one of the music arts.

—For assignments that involve directing or conducting musical productions, concerts, recitals, or other musical events, experience in directing or conducting vocal or instrumental music is more valuable than experience in planning or evaluating curriculum in the music arts or in musicology.

—For assignments that involve evaluating requests for Federal support and assistance, experience in planning or evaluating curriculum in the music arts, or in advising organizations in establishing and maintaining music programs or projects is more valuable than experience in directing or conducting musical productions or concerts.

METHODS OF EVALUATION FOR INSERVICE PLACEMENT

FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement, describes methods of value in appraising candidates' qualifications and promotion potential.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

THEATER SPECIALIST SERIES

Theater Specialist GS–5/15

DESCRIPTION OF WORK

Theater specialist positions require a thorough knowledge of one or more of the theater arts such as producing, staging, technical production, techniques of rehearsal and performance, and theatrical history and literature. Some theater specialists plan, supervise, administer, or carry out educational, recreational, cultural, or other programs in theater such as children's theater, acting workshops, or creative dramatics. Some produce, stage, or direct theatrical productions such as plays, documentary or thematic productions, variety shows, musicals, pageants, contests, or festivals. Some instruct in or serve as specialists in one or more aspects of the theater arts such as (1) direction, (2) technical production including lighting design the execution, scenic and costume design and construction, and makeup, (3) dance production including choreography, dance drama, and ritual theater, (4) performance techniques including acting, dancing, and dramatic pantomime, (5) playwriting, (6) play or music theater production, or (7) theater administration, management, or promotion. Other theater specialists review, evaluate, and act upon requests for Federal support in the field of theater. Still others carry out research in the technology of theater or in theatrical history or literature.

BASIC REQUIREMENTS FOR ALL GRADES

As a basic requirement, applicants must have education or experience as described under either A, B, or C below:

A. A full 4-year course in an accredited college or university with major study appropriate to the field of drama or theater; *or*

B. Three years of experience in which the candidate has demonstrated a good knowledge of one or more aspects of theater as well as an overall appreciation and understanding of the field of theater equivalent to that which he would have gained through the education described in A above. This experience may have been gained in such activities as acting, producing, directing, or technical production such as scenic, lighting, or costume design, drama coaching or teaching, or in theater administration; *or*

C. Any equivalent combination of A and B above, provided each year of education has included at least 6 semester hours of course work appropriate to the field of theater. Appropriate education may be substituted for experience on the basis of 1 year of academic study for 9 months of experience.

Education and training in special schools of dramatic art should be carefully evaluated to determine the extent to which it contributes to the candidate's ability to carry out the work of the position. Relevant full-time study of this kind may be counted on a month-for-month basis as general experience.

GS–5.—The basic requirements which apply to all grades are fully qualifying for positions at grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS FOR GRADES GS–7 AND ABOVE

In addition to meeting the basic requirements for GS–5, applicants for higher grades must have the amount and kind of specialized experience described below:

Grade:	Years of specialized experience
GS–7	1
GS–9	2
GS–11	3

SPECIALIZED EXPERIENCE

Specialized experience is that which shows that the candidate has:

—Ability to produce, stage, or direct theatrical performances or events such as pageants, play festivals, or musicals.

—Ability to instruct in or serve as a specialist in one or more of the theater arts such as (1) direction, (2) technical production such as lighting design and execution, scenic and costume design and construction,

and makeup, (3) dance production such as choreography, dance drama, and ritual theater, (4) performance techniques such as acting, dancing, and dramatic pantomime, (5) playwriting, (6) play or music theater production, or (7) theater administration, management, or promotion.

This experience may have been gained in such work as:

—Planning, staging, or directing theatrical productions or events such as plays, pageants, or play tournaments, festivals, or musicals.

—Planning and carrying out secondary school, community, college, university "little" theater or drama group programs, or serving as a technical production specialist in such programs.

—Managing, administering, directing, or producing for professional theater companies such as civic repertory, resident community, summer stock, Broadway productions, national touring companies, or regional theater groups, or serving as a technical production specialist in such productions.

—Planning, establishing, or evaluating a theater curriculum for secondary or higher academic levels.

Instructing in the principles of direction, technical production, dance production, rehearsal and performance, playwriting, play or music-theater production, theater administration, management or promotion.

SUBSTITUTION OF EDUCATION FOR SPECIALIZED EXPERIENCE

Full-time graduate education in drama or theater may be substituted for experience on the following basis. *This education must have equipped the candidate with the knowledge and ability to perform fully the work of the positions for which he is being considered.*

A. *For 1 year of specialized experience.*—One full year of graduate study in theater. (This amount and kind of education meets all the requirements for grade GS–7.)

B. *For 2 years of specialized experience.*—Completion of all the requirements for a master's (or equivalent) degree in →theater← or 2 full years of graduate education in →theater←.

C. *For 3 years of specialized experience.*—Completion of all the requirements for the doctoral degree (Ph. D. or equivalent).

D. *Alternate requirements*

1. Superior academic achievement at the baccalaureate level is qualifying at grade GS–7. The pertinent criteria in section III of Part II, Instructions to Users, of this handbook must be met.
2. A combination of superior academic achievement and 1 year of appropriate specialized experience is qualifying at grade GS–9.

E. *Combinations of specialized experience and graduate education.*—Equivalent combinations of specialized experience and graduate education of the type described above are acceptable at each grade. (Thirty semester hours, or the equivalent part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

QUALITY OF EXPERIENCE

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to the next lower grade, →or 1 year comparable to the second lower grade← in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to the next lower grade in the Federal service.

This experience or education must have equipped the candidate with the knowledge and ability to fully perform the work of the position for which he is being considered.

BASIS OF RATING

No written test is required. Candidates will be rated on the basis of their education, train-

ing, experience, and personal qualifications in relation to the requirements of the specific positions for which they are being considered.

Ratings will be based on the applicant's statements in the application and on any additional evidence that may be received.

SELECTIVE PLACEMENT

Theater specialist positions vary significantly in the kinds and combinations of specialized knowledges and skills required. For example, the successful performance of the work of some positions requires one or more of the following:

—Ability to identify the theater interests of diverse individuals or groups.
—Ability to stimulate interest and participation in theatrical activities.
—Ability to lead or guide the theatrical activities of individuals or groups at varying levels of development and with varying degrees of theatrical skills.
—Ability to plan, supervise, administer, carry out, or evaluate cultural, educational, recreational, or other theater programs such as children's theater or creative dramatics.
—Ability to direct theatrical performances or events such as plays, pageants, festivals, or musicals.
—Ability to serve as a technical specialist in one or more aspects of the theater arts.
—Ability to serve as a dance production director, choreographer, dance-drama specialist, or musical comedy stylist.
—Ability to teach the techniques of acting, producing, directing, technical production, or theater administration, management, or promotion.
—Ability to apply a knowledge of the current state of the theater arts and an understanding of agency program objectives and requirements in evaluating requests for Federal support or assistance.
—Ability to plan and carry out research in the technology of theater, or in theatrical history or literature.

For positions with specialized requirements, consideration and selection may be limited to those candidates whose records show evidence of the required capabilities.

QUALIFICATION INQUIRIES

Inquiries, including contacts with applicant's present and former supervisors and associates, may be made to obtain further information concerning applicants' technical and personal qualifications and general suitability for these positions.

INTERVIEW REQUIREMENTS

Skill in interpersonal relationships is vital to success in most theater specialist positions. Accordingly, candidates may be required to appear for an employment interview. The purpose of this interview is to permit the evaluation, at firsthand, of the personal qualities that are important to success in these positions.

SUPERVISORY POSITIONS

For supervisory positions see the qualification standards for "Supervisory Positions in General Schedule Occupations" in part III of this handbook.

EVALUATION OF EDUCATION AND EXPERIENCE

Education

The evaluation of education requires particular care. It should take into account both the substance of the course work in theater, and the breadth and depth of cultural background reflected in the pattern of the candidate's total course work. Particular attention should be devoted to the extent to which the substance of the course work offered by the candidate has equipped him with the knowledges and skills essential to success in the position to be filled.

Experience

The evaluation of the kind and level of experience should be based on careful consideration of the knowledges, skills, and abilities offered by the candidate in relation to the specific requirements of the position to be filled. For example:

—For assignments that involve program planning and management, experience in

planning, carrying out, or evaluating cultural, educational, or recreational programs in theater is more valuable than experience as an instructor in theater arts, or as an actor.

—For assignments that involve producing, directing, or performing, experience in producing or staging plays, musicals, or other theatrical performances, or instructing in the technical aspects of theater is more valuable than experience in planning or evaluating curriculum in the theater arts, or in research.

—For assignments that involve evaluating requests for Federal support and assistance, experience in planning or evaluating curriculum, or in advising organizations in establishing and maintaining programs or projects is more valuable than experience in staging, directing, or acting.

METHODS OF EVALUATION FOR INSERVICE PLACEMENT

FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement, describes methods of value in appraising candidates' qualifications and promotion potential.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

ART SPECIALIST SERIES

Art Specialist GS–5/15

DESCRIPTION OF WORK

Art specialist positions require a thorough knowledge of the theories and techniques of one or more art forms. Some art specialists plan and carry out educational, cultural, recreational, or other programs in the field of art. Some art specialists demonstrate the techniques of or instruct in one or more of the fine or applied arts. Others review and act upon requests for Federal support and assistance in the field of art. Still others carry out research in the tools and techniques or the history or literature of one or more of the arts.

BASIC REQUIREMENTS FOR ALL GRADES

As a basic requirement, applicants must have education or experience as described under either A, B, or C below:

A. A full 4-year course in an accredited college or university with major study in a field appropriate to one or more of the fine or applied arts; *or*

B. Three years of experience in which the candidate has demonstrated a good knowledge of the materials, tools, and techniques of one or more of the fine or applied arts, and an overall appreciation and understanding of the arts equivalent to that which he would have gained through the education described in A above. This experience may have been gained as an artist, a teacher, or a restorer of art objects; *or*

C. Any equivalent combination of A and B above, provided each year of education has included at least 6 semester hours of course work appropriate to the field of art. Appropriate education may be substituted for experience on the basis of 1 year of academic study for 9 months of experience.

Education or training in special art schools should be carefully evaluated to determine the extent to which it contributes to the candidate's ability to carry out the work of the position. Relevant full-time study of this kind may be counted on a month-for-month basis as general experience.

GS–5.—The basic requirements which apply to all grades are fully qualifying for positions at grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS FOR GRADES GS–7 AND ABOVE

In addition to meeting the basic requirements for GS–5, applicants for higher grades must have the amount and kind of specialized experience described below:

Grade:	Years of specialized experience
GS–7	1
GS–9	2
GS–11/15	3

SPECIALIZED EXPERIENCE

Specialized experience is that which shows that the candidate has:

—Ability to plan, supervise, administer, or carry out an educational, recreational, cultural, or other art program such as art festivals, competitions or workshops.

—Ability to perform as an artist or demonstrate the methods and techniques and teach one or more art forms such as graphics, sculpture, pottery and ceramics, or metalwork and jewelry.

This experience may have been gained in such work as:

—Managing, administering, directing or serving as an art specialist in a community or private art center.

—Planning and carrying out a secondary school, college or university art program or serving as an art specialist in such a program.

—Planning, establishing or evaluating an art curriculum for secondary or higher academic levels.

—Serving as an art specialist in demonstrating or teaching the methods and techniques of one or more art forms.

SUBSTITUTION OF EDUCATION FOR SPECIALIZED EXPERIENCE

Full-time graduate education in art may be substituted for experience on the following basis. *This education must have equipped the candidate with the knowledge and ability to perform fully the work of the positions for which he is being considered.*

A. *For 1 year of specialized experience.*— One full year of graduate study in art. (This amount and kind of education meets all the requirements for grade GS–7.)

B. *For 2 years of specialized experience.*— Completion of all the requirements for a master's (or equivalent) degree in art or 2 full years of graduate education in the field.

C. *For 3 years of specialized experience.*— Completion of all the requirements for the doctoral degree (Ph. D. or equivalent) or 3 full years of graduate education in art.

D. *Alternate requirements.*—

1. Superior academic achievement at the baccalaureate level is qualifying at grade GS–7. The pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.
2. A combination of superior academic achievement and 1 year of appropriate specialized experience is qualifying at grade GS–9.

E. *Combinations of specialized experience and graduate education.*—Equivalent combinations of specialized experience and graduate education of the type described above are acceptable at each grade. (Thirty semester hours, or the equivalent part-time graduate education, may be considered to be equal to 1 full academic year of graduate education.)

QUALITY OF EXPERIENCE

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to the next lower grade, or 1 year comparable to the second lower grade in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to the next lower grade in the Federal service.

This experience or education must have equipped the candidate with the knowledge and ability to fully perform the work of the position for which he is being considered.

BASIS OF RATING

No written test is required. Candidates will be rated on the basis of their education, training, experience, and personal qualifications in relation to the requirements of the specific position for which they are being considered.

Ratings will be based on the applicant's statements in the application and on any additional evidence that may be received.

SELECTIVE PLACEMENT

Art specialist positions may vary significantly in the kinds and combinations of specialized knowledges and skills required. For example, the successful performance of the work of some positions may require one or more of the following:

—Ability to identify the artistic interests of diverse individuals or groups.
—Ability to stimulate interest and participation in artistic activities.
—Ability to lead or guide the artistic activities of individuals or groups at varying levels of development and with varying degrees of artistic skills.
—Ability to plan, supervise, administer, carry out, or evaluate cultural, educational, recreational or other art programs such as art festivals, competitions, or workshops.
—Ability to demonstrate or teach one or more art forms.
—Ability to apply a knowledge of current developments in art, and an understanding of agency program directives and requirements in evaluating requests for Federal support or assistance.

For such positions, consideration and selection may be limited to those candidates whose records show evidence of the required capabilities.

QUALIFICATION INQUIRIES

Inquiries, including contacts with applicants' present and former supervisors and associates, may be made to obtain further information concerning applicants' technical and personal qualifications and general suitability for these positions.

INTERVIEW REQUIREMENTS

Skill in interpersonal relationships is vital to success in some art specialist positions. Accordingly, applicants may be required to appear for a pre-employment interview. The purpose of this interview is to permit the evaluation, at firsthand, of the personal qualities that are important to success in these positions.

SUPERVISORY POSITIONS

For supervisory positions see the qualification standards for "Supervisory Positions in General Schedule Occupations" in part III of this handbook.

EVALUATION OF EDUCATION AND EXPERIENCE

Education

The evaluation of education requires particular care. It should take into account both the substance of the course work in art and the breadth and depth of the cultural background provided by the candidate's total course work. Particular attention should be devoted to the extent to which the substance of the course work offered by the candidate has equipped him with the knowledges and skills essential to success in the position to be filled.

Experience

Evaluation of the kind and level of experience offered by candidates requires particular care. It should be based on careful consideration of the knowledges, skills, and abilities offered by candidates in relation to the specific requirements of the position to be filled. For example:

—For assignments that involve program planning and management, experience in planning, carrying out, or evaluating cultural, educational, or recreational programs in art is more valuable than experience as an instructor or a specialist in one or more art forms.

—For assignments that involve demonstrating or instructing in the techniques of one or more art forms, experience as an artist or teacher is more valuable than experience in planning or evaluating curriculum in the arts.

—For assignments that involve evaluating requests for Federal support and assistance, experience in planning or evaluating curriculum in the arts, or in advising organizations in establishing and maintaining art programs or projects is more valuable than experience in demonstrating or teaching one or more art forms.

METHODS OF EVALUATION FOR INSERVICE PLACEMENT

FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement, describes methods of value in appraising candidates' qualifications and promotion potential.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

Photographer GS–4/12
Photographer (Still) GS–4/12
Photographer (Laboratory) GS–4/12
Photographer (Motion Picture) GS–7/12
Photographer (Television) GS–7/12
Photographer (Aerial) GS–7/12
Photographer (Underwater) GS–7/12
Photographer (Scientific and Technical) GS–7/12
Photographer (Medical) GS–7/12

DESCRIPTION OF DUTIES

Photographers who are cameramen use still, motion picture, television, ultra-high-speed, aerial or other camera in taking photographs for informational, educational or scientific record purposes. They must understand how the photograph is to be used and the kind of information it is intended to convey in order to plan the photograph so as to achieve the desired result. Photographers also supervise or carry out the laboratory work connected with developing and printing the photographs which they have taken. Some photographers work solely in the laboratory and do no camera work at all. Photographers exercise artistic ability in the course of their work.

Photographers must be familiar with the techniques and processes used in photography. They must also possess artistic ability, a knowledge and understanding of the subject matter involved in the work they photograph, or a combination of both artistic ability and subject-matter knowledge.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

General experience

General experience for photographer positions includes experience in (1) operating such cameras and related equipment as still cameras, copy cameras, 8mm. and 35mm. motion picture cameras, (2) carrying out the common developing and printing processes and related techniques, or (3) a combination of both (1) and (2). This general experience must demonstrate increasing ability commensurate with the grade involved to exercise artistic ability in selecting, arranging, and lighting subjects or in processing negatives, printing, enlarging, cropping, or retouching prints, or in both.

Specialized experience

Specialized experience for photographer positions includes experience in operating special types of cameras such as production-type motion picture cameras, television cameras, aerial, underwater, ultra-high-speed, still-sequence cameras, etc., along with their related equipment. Specialized experience may also include the ability to exercise a subject-matter knowledge of the field of work to be photographed in order to select the proper type of camera, lens, filters, lighting and other related factors and equipment in order to produce the appropriate photographic record desired.

The nature and quality of general and specialized experience for the various levels is described at greater length below.

Length of experience

Except for the substitution of education for experience as provided for in this standard, applicants must have had, as a minimum, the length of experience specified in the following table:

Photographer
Photographer (Still)
Photographer (Laboratory)

Years of experience required

Grade	General (years)	Specialized (years)	Total (years)
GS–4	2	0	2
GS–5	3	0	3
GS–7	4	0	4
GS–9	5	0	5
GS–11/12	6	0	6

Photographer (Motion Picture)
Photographer (Television)
Photographer (Aerial)
Photographer (Underwater)
Photographer (Scientific and Technical)
Photographer (Medical)

Years of experience required

Grade	General (years)	Specialized (years)	Total (years)
GS-7	3	1	4
GS-9	4	1	5
GS-11/12	5	1	6

Nature and quality of experience

For GS-4:

Positions at this level require only general experience. Such experience may have been gained in helper work either in a photographic laboratory or as an assistant to a cameraman when such experience has included learning to perform the simpler aspects of photographic work and demonstrates that the applicant has gained an understanding of the *how and why* of photographic operations and shows that he has the potential to learn more advanced work. General photographic experience may be gained in prevailing wage kinds of positions provided that it demonstrates the applicant's understanding of the photographic process.

For positions at this level, a maximum of 1 year's experience may have been gained in operating microfilming, photocopying, or photoduplicating equipment, provided that it demonstrates that the applicant has an understanding of the basic photographic processes involved. Other kinds of qualifying experience for positions at GS-4 include experience in measuring and mixing chemicals, washing and drying prints, cropping and trimming prints, cleaning, assembling and operating photographic equipment.

For GS-5:

Positions at this level also require only general experience. If camera work at this level is part of the assignment, the applicant's experience should show that he is familiar with the fundamental methods, techniques, and procedures involved in the use of standard still cameras and that he has had some training or experience in simple color photography. If laboratory work is part of the assignment, the applicant's experience should show that he is familiar with the fundamental methods, processes, and techniques involved in contact and projection printing, processing negatives, and producing slides.

Experience qualifying for this level should show potential artistic ability in selecting, arranging, and lighting subjects, and/or in controlling light timing and temperature during processing.

For GS-7:

A. Applicants for positions involving camera work at this level, must have at least 1 year's experience in using the common range of still studio and portable cameras and 16mm. and 35mm. motion picture cameras. This experience should demonstrate the ability to determine shutter speeds, lens settings, filters, camera angles, exposure times, and length of exposures in photographing uncomplicated black-and-white or color stationary or moving objects.

B. Applicants for positions involving laboratory work at this level must have at least 1 year of experience that demonstrates the ability to apply standard methods in all phases of black-and-white dark-room work, and a thorough familiarity with the commonly used procedures, processes and techniques used in fine quality laboratory work.

C. For positions requiring the exercise of artistic ability to a substantial degree at this level, the experience must also demonstrate the ability to arrange and compose subjects, to select appropriate lighting, or to retouch negatives, remove unwanted shadows, crop prints, adjust the intensity of portions of a print in order to produce artistically pleasing results.

For GS–9:

A. Applicants for positions involving camera work at this level should have at least 1 year's experience which demonstrates in addition to the ability to use the common range of cameras and related equipment:

(1) familiarity with the use of specialized cameras such as production-type motion picture cameras, television cameras, aerial, or underwater cameras along with their related equipment. This experience should demonstrate the ability to carry out general instructions in arranging the physical setup, lighting, exposures, and camera angles required by such specialized photography; *or*

(2) familiarity with the use of specialized cameras used in scientific and technical photography such as ultra-high-speed cameras, still-sequence cameras, and their related equipment, lighting, and controls, and the ability to set up such equipment in accordance with established methods and procedures for the specific objective.

B. Applicants for positions involving subject-matter knowledge at this level in the fields of scientific and technical photography, or medical photography must possess at least 1 year's experience that demonstrates that they have the ability to acquire background information in a specific subject-matter area related (although not necessarily identical) to the subject-matter area involved in the specific assignment, and to understand the operations, equipment, vocabulary, and program and photographic objectives involved.

C. Applicants for positions that require the exercise of artistic ability to a substantial degree at this level must show at least 1 year's experience that demonstrates the exercise of artistic ability in planning the composition of still or moving photographs, retouching photographs to eliminate features unwanted for esthetic reasons, using lighting and camera angles to bring out aspects of the subject, utilizing settings and background to enhance the esthetic aspects of the photograph, and varying processes or techniques in order to accentuate or minimize features appearing in an exposed photograph.

For GS–11:

Applicants for camera positions at this level should have at least 1 year of experience that demonstrates, in addition to the abilities required for GS–9, the ability to plan and carry out photographic coverage of a series of scientific, technical or medical events that requires the use and adaptation of a wide variety of specialized photographic equipment to meet specific program objectives. This experience must show that the applicant is able to determine from the physical and program conditions involved what equipment is needed and how it ought to be set up.

Applicants for positions that require subject-matter knowledge at this level should have at least 1 year of experience that shows the ability to acquire thorough knowledge of subject-matter content and an understanding of the objectives and operations involved in a scientific, technical, or medical project and the ability and imagination to develop the photographic aspects of the project. This subject-matter knowledge need not be identical to that required in the position to be filled, but the fields should be sufficiently related to demonstrate the capability of the applicant to acquire the subject-matter knowledge required for the position to be filled.

Applicants for positions requiring the exercise of artistic ability to a substantial degree at this level must have at least 1 year of experience that demonstrates the use of artistic and creative ability in using photography as a means of communicating information and emotions. This experience should demonstrate the ability to use all of the resources at a photographer's command to produce individual or series of still photographs or motion pictures that are consistently of high artistic merit.

For GS–12:

Applicants for positions at this level should have (in addition to the experience required for grade GS–11) at least 1 year's experience that demonstrates the ability to plan and organize a program of photographic coverage for general, scientific, technical, or medical programs. This experience should demonstrate, as required by the specific position involved, the ability to supervise other photographers, to provide technical training and assistance to them, and to work with program officials in determining (1) the kind of photographic equipment needed, (2) the nature of the photographic coverage required, and (3) the ways in which photography may be used to contribute to the organization's program.

Application of the qualification requirements

1. The above qualification requirements are described in terms of the four aspects of photographic positions: camera work, laboratory work, subject-matter knowledge, and artistic ability. In any given position these elements may be present in varying degrees; some may be more significant for successful performance than others. In applying the standard to a specific position to be filled it is first necessary to determine the degree to which the four aspects making up the position are present and then determine the nature of the qualifications required for successful performance of each aspect.

2. In interpreting this standard, note that, if a position requires at least a year's experience in work demonstrating a specific kind of camera knowledge, and at least a year's experience in a specific kind of subject-matter knowledge, both of these kinds of experience may have been gained in the same position at the same time.

Quality and level of experience

Possession of the length of experience required for a grade will not of itself be accepted as proof of possession of qualifications for that grade. The applicant's record of experience and training must show that he has the ability to perform the work of the position, as specified above under "Nature and Quality of Experience." At all grade levels, at least 6 months of the qualifying experience must be of a level comparable to the next lower Classification Act grade, or 1 year of experience must have been at a level comparable to that of the second lower grade.

Substitution of education for experience

A successfully completed residence course in basic photography (either in high school or in the armed forces) consisting of at least 200 hours of instruction or supervised laboratory work may be substituted for 3 months of the required general experience in any grade.

Advanced photographic training in residence at a technical trade school beyond the high school level or at a recognized college or university may be substituted year for year for the required experience in any grade.

EVALUATING EXPERIENCE AND TRAINING

At the present time photography, both in camera work and laboratory work, is essentially an "apprentice type" of occupation. While some courses in photography are given in vocational schools and technical institutes and in the armed forces, training and experience on the job still represents the most common kind of career development. One very common pattern progresses from laboratory helper duties (of a typical prevailing wage nature) such as trimming and packing prints, cleaning equipment, and mixing chemicals to learning the developing and printing of black-and-white photographs. At this point, some careers will develop along laboratory work through color processing and printing. Other employees will move into studio camera work using copy cameras and learning about such matters as focal lengths, lighting, and problems in enlarging and reduction. From this point, they may develop into cameramen who take the camera out of the studio to the site for photography.

One of the most common types of photographic operations in the Federal Government

is the one- or two-man shop which combines the performance of black-and-white laboratory work with general camera work both in the studio and on the site. (Color processing is very often done through contract since it requires special equipment and is also very time-consuming for a one- or two-man photographic operation.) For such positions experience in both laboratory work and camera work is required.

Motion picture photography and television photography are both highly specialized kinds of camera work which require knowledge and understanding of the cameras and lighting equipment involved as well as a knowledge of how the photography fits into the production process. This experience is gained almost always through "apprenticeship-type" training. There are a few schools of cinematography, but graduates are very scarce.

Most scientific and technical photography is concerned with highly specialized subject-matter areas. However, the equipment used (including ultra-high-speed cameras, stop-still cameras, electronic controls, etc.) is essentially the same, regardless of the subject matter involved. The subject-matter knowledge required to be brought to the job is usually in the broad subject-matter area rather than in the specifics of a particular scientific laboratory or engineering research center.

There has been a rapid technological advance in the photographic field in the past few years. Experience that shows that the applicant is familiar with the latest developments in the use of equipment, paper and films should be rated higher than experience that has been limited to the use of older equipment and processes.

BASIS OF RATING

No written test is required. Applicants will be rated on the basis of the extent and quality of their experience and training. The rating of experience will be based upon the applicants' statements in their applications, upon the quality of samples submitted, if required, and upon any additional information acquired by the Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 14. In addition, most positions require the ability to distinguish either basic or shades of colors. P.R. Code: A–3; B–4, 5, 6, 7, 8; C–1, 2, 3; D–2; E

AUDIO-VISUAL PRODUCTION SERIES

Audio-Visual Production Officer
Motion Picture Production Specialist
Television Production Specialist
Radio Production Specialist
Audio-Visual Production Specialist
GS–5/14

STATEMENT OF DUTIES

Employees in positions in this series plan, supervise, direct, or accomplish the production and editing of motion pictures; film-strips; live, taped, or filmed television productions; live, taped, or recorded radio productions; and such other similar productions as prerecorded slide lectures, and sound accompaniments to exhibits and scenic or historic views.

EXPERIENCE REQUIREMENTS

Except for the substitution of education for total experience as provided for in this standard, applicants must have had, as a minimum, the length of experience specified in the following table and of the nature and quality specified below:

Grade of position:	*Total experience (years)*
GS–5	3
GS–7	4
GS–9	5
GS–11/14	6

NATURE OF EXPERIENCE

Qualifying experience for positions in this series is experience in the fields of radio, movie, television, or audio-visual communication, or experience in any combination of these fields that demonstrates the ability to perform the duties of the position. For positions at GS–11 and above in the fields of (1) motion pictures and television, and (2) radio, at least 1 year of the total experience must be in work directly connected with the production aspects of these fields, and must be immediately preparatory to the work of the position involved.

Many positions in this series, particularly those with responsibility for directing the production of the various kinds of audio-visual productions, require the ability to lead, supervise, and direct a team of specialists and technicians in various fields and to make full use of their talents, skills and abilities.

Some positions also require the ability to work effectively as leaders of people of European, Asian, Latin American, or African backgrounds, cultures, and languages in the production of foreign information material.

QUALITY OF EXPERIENCE

Because talent and creative ability are so vital to successful production of motion pictures, television, radio, and other audio-visual productions, length of experience should be considered only as a minimum requirement. Quality of experience is much more vital to successful performance in the occupation. This quality of experience can best be determined by examination of the applicant's ability and talent, as evidenced by work that he has done in the past and the general esteem in which he has been held by knowledgeable members of the occupation.

Applicants for positions at grades GS–7 through GS–11 must have had at least 1 year of experience at a level of difficulty comparable to the second lower grade in the Federal service. Applicants for grades GS–12 and above must have had at least 1 year of experience at a level of difficulty comparable to the next lower grade in the Federal service.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. For a maximum of 3 years of the required experience applicants may substitute successfully completed undergraduate study in an accredited college or university at the rate of 1 year of full time academic study for 9 months of experience.

(TS 121)
December 1968
Reprinted without change April 1975
(TS 153)

2. Full-time* graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For 1 year of specialized experience.*— One full academic year of graduate education in fields directly related to the production of motion pictures, television, or radio. (This amount and kind of education meets all the requirements for grade GS–7.)

b. *For 2 years of specialized experience.*— Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education, which is in one of the fields described in paragraph a above. (This amount and kind of education meets all the requirements for grade GS–9.)

3. The Superior Academic Achievement Standard in section III of Part II, Instructions to Users, of this handbook, is applicable at grade GS–7.

*Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.

BASIS OF RATING

→No written test is required. Applicants will be rated on the basis of an evaluation of their education and experience in relation to the requirements for the specific positions for which they are being considered.← The rating of experience will be based upon applicants' statements in their applications and any additional information received by the Commission.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for Supervisory Positions in General Schedule Occupations, in part III of this handbook.

PHYSICAL REQUIREMENTS

See Part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

Writer GS–5/14

Editor GS–5/14

Writer-Editor GS–5/14

Specializations are authorized for the following media: *Printed Media*, *Radio*, *Motion Pictures*, and *Television*.

STATEMENT OF DUTIES

Employees in this series write or edit one or more of the following: articles, news releases, pamphlets, brochures, speeches, radio, television, or motion picture scripts, etc. They acquire (through library research, background interview, and reading) information about the subject involved; they select the pertinent information, analyze it, and write or edit the final manuscripts. In doing this, they use a style and manner of presentation that meet the requirements of the information media involved and that is also consistent with the interests of the potential audience and the objective of the writing or editing project. (See also the classification standards for the Writing and Editing Series, GS–1082, and the qualification and classification standards for the Public Information Series, GS–1801, for the differences in duties and qualifications of these related fields of work.)

EXPERIENCE REQUIREMENTS

Except for the substitution of education for general experience as provided for in these standards, applicants must have had, as a minimum, the length of experience specified in the following table and of the quality specified below:

Grade	General experience (years)	Specialized experience (years)	Total (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11/14	3	3	6

General experience

Experience in administrative, professional, investigative, technical, or other work that has required the ability to analyze data and present the pertinent facts in written form.

Specialized experience

Experience in writing or editing articles, speeches, pamphlets, or news releases designed for publication in such media as the daily or weekly press; general, scientific, technical, or trade magazines; pamphlets; brochures; internal publications; etc. The writing or editing experience must demonstrate the ability to present information that (1) meets the requirements of the magazine, pamphlet, or other publication involved, and (2) is designed for audiences of varying interests and reading habits.

Quality of experience

Applicants for grades GS–7 through GS–11 must have had at least 1 year of specialized experience at a level of difficulty comparable to the second lower grade in the Federal service. Applicants for grades GS–12 and above must have had at least 1 year of specialized experience at a level of difficulty comparable to the next lower grade in the Federal service.

Applicants for positions in the specializations of *Printed Media*, *Radio*, *Motion Pictures*, or *Television* at GS–11 and above must have had at least 1 year of experience in writing for the appropriate medium which has demonstrated the ability to write acceptable copy that utilizes the specialized methods of presentation characteristic of the medium. [Applicants for positions at GS–11 and above involving two or more media may be required to show appropriate experience demonstrating a knowledge of the writing techniques for these media and the ability to apply these techniques effectively.]

EXAMPLES OF EXPERIENCE NOT QUALIFYING FOR SPECIALIZED EXPERIENCE

The following are examples of types of experience not qualifying for specialized experience:

1. Fiction writing that has not demonstrated the ability to acquire, analyze, and select pertinent information about a subject through interview, research, or observation.

2. Experience in positions whose primary objective is the performance of work in a professional or technical subject-matter area even though the completed work results in the writing or publication of an article or report.

3. Clerical or mechanical editing experience such as copy reading, proofreading, correcting of grammar and punctuation, and layout and dummy work, where the incumbent does not perform editing work characteristic of the Writing and Editing Series, GS-1082.

4. Experience such as writing or compiling reports or proceedings of meetings and conferences based upon verbatim or summary notes.

5. Clerical and correspondence writing.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. For a maximum of 3 years of the required experience, applicants may substitute successfully completed study in an accredited college or university at the rate of 1 year of academic study for 9 months of experience.

2. Full-time* graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For 1 year of specialized experience.*—One full academic year of graduate education in journalism, creative writing, English literature, or other directly related field. (This amount and kind of education meets all the requirements for grade GS-7.)

b. *For 2 years of specialized experience.*—Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education, which is in one of the fields described in paragraph a above. (This amount and kind of education meets all the requirements for grade GS-9.)

3. The Superior Academic Achievement Standard in section III of part II, Instructions to Users, of this handbook, is applicable at grade GS-7.

*Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.

WRITTEN TEST

★A written test is required for competitive appointment to positions at GS-5 and GS-7. For inservice placement actions at grades GS-5 and 7, a passing score is not required, but the test may be used, in combination with other evaluation methods, as one element in ranking employees for reassignment, promotion, transfer, reinstatement, or other internal placement into this occupation. (See FPM Supplement 335-1, Evaluation of Employees for Promotion and Internal Placement, especially Appendix A: Guidelines for Use of Written Tests.) The test may not be waived for appointments outside the register.★

RATING GUIDES

1. In evaluating education substituted for experience, undergraduate college education directly related to the writing and editing occupation such as advanced courses in English composition, or courses in creative writing, journalism, and writing for radio, motion pictures, and television should be given a high quality rating. (This does not include required courses in English composition, which in themselves are not indicators of high quality writing or editing ability.)

2. The quality of writing and editing experience cannot be judged by samples of published works alone. It is necessary to base quality evaluations on information derived from supervisors, editorial reviewers, editors (particularly in the case of free-lance experience), and employers. For example, one of the most important indicators of success on the job is the extent to which the writer's or editor's copy has been

GS–11 and above that require the ability to write or edit for many different kinds of publications and audiences. For this reason, successful writing and editing experience that has involved preparation of copy tailored to the style, format, and other individual requirements of newspapers, magazines, and scientific and trade journals, or to the characteristics of different groups of readers in terms of their age, sex, hobbies, fields of study or work, etc., should be evaluated as high quality for grades GS–11 and above.

4. Writing and editing experience that has been limited to the radio, motion picture, or television medium is also qualifying for the printed media specialization at grades GS–11 and below, but at a lower quality level. However, experience that has been limited to the printed media is not considered to be qualifying for the radio, motion picture, or television specializations, since it does not provide skill in the techniques and requirements peculiar to any of these media. Experience that has been limited to the radio, motion picture, or television medium is not usually qualifying for positions in either of the other two media at GS–12 and above.

5. Success in writing and editing depends in large measure upon the ease with which the candidate is able to meet and deal with people of differing interests, educational backgrounds, and ability to express themselves. Writers and editors acquire information and verify data through personal and telephone interviews. Experience which has required the candidate to interview all kinds and levels of people in order to acquire and check information should be credited as of higher quality than experience which has required only desk writing or editing without substantial person-to-person factfinding and discussion.

6. Part-time salaried writing or editing experience may be treated according to the standard principles for evaluating part-time experience. However, experience as a free-lance writer is not so easy to evaluate. Free-lance writing experience for the printed media can be credited only if the experience resulted in published material that has apeared in generally recognized publications such as general magazines or trade journals. The contribution need not have been paid for since many professional and specialized periodicals do not pay their contributors. However, the publications involved must evaluate the quality of the material they publish on a competitive basis. Books or pamphlets published at the author's expense do not meet this criterion; neighborhood throwaway newspapers and employee or organization newsletter are examples of publications that usually do not meet this criterion either. Free-lance writing experience for radio, motion pictures, or television is to be evaluated according to similar principles. There are no clear cut easy-to-apply guides for estimating the amount of time free-lance writers spend in order to equate this to the years of experience requirement in the qualification standard. Therefore, it is necessary to consider the amount of time claimed by the free-lance writer in relation to his published output in order to determine whether the amount claimed is a reasonable figure.

BASIS OF RATING

Applicants for positions at GS–5 and GS–7 will be rated on the basis of their test scores.

Applicants for positions at GS–9 and above will be rated on the extent and quality of their experience. The rating of experience will be based upon applicants' statements in their applications and upon any additional evidence received by the Civil Service Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

acceptable for publication without extensive rewriting or further editing. The degree of rewriting and editing required should be based upon information received from supervisors, reviewers, and others in a position to judge this aspect of the employee's work, and should be reflected in the final evaluation of experience and training.

3. Flexibility of writing or editing style is a desirable skill in candidates for positions at

TECHNICAL WRITING AND EDITING SERIES

GS–1083
(P.D)

This standard applies to all positions in the Technical Writing and Editing Series GS–1083–0 in grades GS–5 through GS–14.

I. Duties statement

Technical Publications Writer

Technical publications writers prepare original papers, articles, or reports covering professional or technical subject matter based upon interviews with workers in the field; upon research notes and background files; and upon independent reading. Technical publications writers may also obtain information through watching tests, experiments, and similar operations. The writers must have substantial subject-matter knowledge in order to carry out these assignments.

Technical Publications Editor

Technical publications editors prepare manuscripts for publication by assuring that the report, article, or other publication says what it is designed to say; that the level of concepts, expression, and vocabulary is appropriate for the audience for which the written material is designed; that the conclusions presented are valid and supportable in terms of what has been presented in the paper; and that statements made and inferences drawn are in accordance with agency policy. The editors must have substantial subject-matter knowledge in order to carry out these assignments.

Technical Manuals Writer
Specifications Writer

Technical manuals and specifications writers prepare manuals and specifications covering technical or professional subject matter based upon interviews with workers in the field; upon independent reading; upon interpretation of blueprints, diagrams, charts, engineering reports and specifications; and upon personal experience in working with the equipment, device, or system itself. The writers must have substantial subject-matter knowledge in order to carry out these assignments.

Technical Manuals Editor
Specifications Editor

Editors of technical manuals and specifications personally edit manuals and specifications, or monitor the preparation of technical manuals or specifications which are being written under contract by other agencies or private industry. As in the case of writers of technical manuals and specifications, these editors must have substantial subject-matter knowledge in order to carry out these assignments.

II. Experience, training, and other requirements

Except for the substitution of education provided for below, applicants must have had progressively responsible experience in the types and amounts shown in the table below, and of the nature described in the statements immediately following:

Grade	General (years)	Specialized (years)	Total (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11/14	3	3	6

A. *General experience*

The general experience requirements are the same for technical publications writers and editors and for manuals and specifications writers and editors.

General experience is (1) progressively responsible work in the appropriate scientific, technical, or social science field (or combination of fields) which has required an understanding of the basic concepts and practices in the field, a knowledge of its specialized vocabulary, and the ability to acquire additional information about the field and related fields, or (2) progressively responsible work with equipment, systems, or devices which has required an understanding of their principles, operation, and uses and the ability to describe these principles, operations, and uses in simple clear language.

(p. 2)

Experience gained while performing routine laboratory or survey work is not qualifying unless it required a substantial knowledge of the basic concepts and principles of the appropriate subject-matter field. Experience as a mechanic or repairman is not qualifying unless it required the ability to describe clearly and simply the principles, functions, or uses of equipment, devices, or systems.

B. *Specialized experience*

1. Technical Publications Writer
   Technical Publications Editor
   Technical Publications Writer-Editor

Specialized experience means progressively responsible work as a writer or editor of technical reports and publications which has required substantial subject-matter knowledge of the field involved and which has demonstrated the ability to acquire and understand further information concerning various aspects of the subject-matter field. Such experience may have been gained as a writer or editor of technical articles for publication, as an editor of individual of group-prepared technical reports and papers, legal opinions or decisions, or other types of publications, or as an editor of a technical publication who is responsible for the content of the publication. These types of experience must have (1) included the acquisition of information through study of background materials, observation of tests and experiments, or interviews with subject-matter specialists and, (2) demonstrated the ability to understand and utilize, in the writing and editing process, a substantial knowledge of the appropriate subject-matter field or combination of fields.

2. Technical Manuals Writer
   Technical Manuals Editor
   Technical Manuals Writer-Editor
   Specifications Writer
   Specifications Editor
   Specifications Writer-Editor

Specialized experience means progressively responsible work as a writer or editor of one or more types of technical manuals or specifications. This writing or editing experience must have required the applicant to secure information (1) through interviews with mechanics, repairmen, engineers, and other specialists; (2) through independent reading; (3) through interpretation of blueprints, diagrams, charts, engineering reports, or specifications; (4) through personal operation, maintenance or repair of the equipment, devices, or systems; or (5) through any combination of these methods. Experience as supervising editor of technical manuals prepared by a subordinate or by an outside contractor is also qualifying where such editing has required the same knowledge and skills as those described above.

C. *Substitution of education for general experience may be made as follows:*

1. A 4-year course of study leading to a bachelor's degree at a college or university of recognized standing may be substituted for the 3 years of general experience, *provided that* such a course has included or been supplemented by at least 15 semester hours in one subject-matter field or in a combination of such fields.

2. In order for a combination of courses in more than one appropriate subject-matter field to be qualifying, the total number of semester hours in the combination of fields offered must be at least 15, and the applicant must show at least one 3-semester-hour course above the elementary or introductory level in each of two of the fields represented in the combination.

3. For positions of technical manuals and specifications writers or editors the equivalent of 15 semester hours in the appropriate subject-matter field or combinations of fields may have been gained through vocational or educational training above the high-school level at a public, private, or armed forces school, or through the teaching of the appropriate vocational or training courses in such a school.

4. Applicants who qualify for grade GS–5 on the basis of completing a full 4-year course leading to the bachelor's degree (including or supplemented by at least 15 semester hours in one subject-matter field or in a combination of such fields) may also be eligible for grade GS–7 if their performance in the written test and their academic record clearly demonstrates that

they have superior learning ability. (The academic record must show (1) that they are in the upper 25% of their class based upon completed college work at the time of filing for the examination, or (2) they have a "B" average or better (or its equivalent) based on completed college work at the time of filing for the examination.) This superior ability will be considered as substitution for the specialized experience otherwise required for a GS–7 position.

D. *Quality of experience*

At grades GS–5 through 11, at least 6 months of the required specialized experience must have been at a level of difficulty comparable to that of the next lower grade, or at least 1 year must have been comparable to the second lower grade in the Federal service. At GS–12 and above, at least 1 year of the required specialized experience must have been at a level of difficulty comparable to the next lower grade in the Federal service.

E. Supervisory → positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard. ←

III. WRITTEN TESTS

A written test is required for competitive appointment to grades GS–5/7. For inservice placement actions at grades GS–5 and 7, a passing score is not required, but the test may be used, in combination with other evaluation methods, as one element in ranking employees for reassignment, promotion, transfer, reinstatement, or other internal placement into this occupation. (See FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement, especially Appendix A: Guidelines for Use of Written Tests.) The test may not be waived for appointments outside the register.

IV. BASIS OF RATING FOR POSITIONS ABOVE GS–7

For positions in grades above GS–7, ratings will be assigned on a scale of 100, based upon an evaluation of the applicants' total pertinent experience and training.

Such ratings will be based upon applicants' statements in their applications and upon any additional evidence received by the Commission.

V. SELECTIVE CERTIFICATION

Positions in this series require many different kinds and combinations of subject-matter knowledge. For this reason selective certification at all levels is necessary in order to assure that eligibles possess the necessary knowledge in the appropriate subject-matter field or combination of fields.

VI. PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

Visual Information Officer GS–9/13
Visual Information Specialist GS–5/13
Visual Information Specialist (Printed Material) GS–9/13
Visual Information Specialist (Exhibits) GS–9/13
Visual Information Specialist (Presentations) GS–9/13

STATEMENT OF DUTIES

Visual Information Specialists plan and design the visual material used in printed material, exhibits, and in speeches, briefings, television, motion pictures, film strips, etc. They determine what photographs and artwork convey visually the information designed for a specific audience. They use either materials on hand or plan and coordinate the production of illustrations, photographs, other artwork, models, slides, overlays, charts, diagrams and other kinds of visual material. They plan the use and display of these visual materials for printed material, exhibits, and presentations.

EXPERIENCE REQUIREMENTS

Except for the substitution of education for experience as provided for in these standards, applicants must have had, at a minimum, the length of experience specified in the following table, and of the quality specified below:

Grade	*General (years)*	*Specialized (years)*	*Total (years)*
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11/13	3	3	6

General experience

Experience in administrative, professional, technical, or other responsible work that has been concerned with the visual communication of information or with the application of the principles of artistic design.

Specialized experience for all positions

Experience concerned with planning the preparation and use of photographs, illustrations, drawings and other artwork, charts, diagrams, dioramas, maps, slides, overlays and other kinds of visual material for use in communicating information through visual means. This experience may have been gained by serving as art director, art editor, layout and design specialist, photographic editor, photographic reporter, layout illustrator, exhibits designer, window display designer or set designer when such experience has demonstrated (1) the ability to communicate information through the use of visual materials, (2) a knowledge of the principles of artistic design and display, (3) the ability to apply these principles to the field of visual information, and (4) a knowledge of the characteristics of the various means of communicating information visually, such as printed material, exhibits, flip-charts, projected slides, etc. Specialized experience may also be acquired in positions of illustrator, photographer or in exhibits construction work where the experience has demonstrated the abilities and knowledges described above.

For positions of Visual Information Specialist (Printed Material) (Exhibits) and (Presentations) the specialized experience described above must also demonstrate the ability to apply the principles of visual communication to the characteristics and requirements of the appropriate means of communication. See the classification standard for the Visual Information Series for a description and discussion of these special characteristics and requirements.

There are also some Visual Information Officer and Specialist positions that require, in addition to the specialized knowledge described above, ability as an illustrator, photographer, or exhibits specialist. Such positions are filled by employees who have these specific abilities.

QUALITY OF EXPERIENCE

Applicants for grades GS–7 through GS–11 must have had at least one year of specialized

Issue date May 1962 (TS 63)
Reprinted without change February 1974 (TS 149)

experience at a level of difficulty comparable to the second lower grade in the Federal service. Applicants for grades GS–12 and above must have had at least one year of specialized experience at a level of difficulty comparable to the next lower grade in the Federal service.

EXAMPLES OF EXPERIENCE NONQUALIFYING FOR SPECIALIZED EXPERIENCE

Work as an illustrator, photographer, artist, letterer, or exhibits construction technician that has not involved the ability to plan and lay out photographs, illustrations, or other artwork or exhibits in order to communicate information, ideas, or emotions through visual means will not be qualifying.

→SUPERVISORY POSITIONS

For supervisory positions, use the qualification standard for Supervisory Positions in General Schedule Occupations in part III of this handbook, in conjunction with this standard.←

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

A 4-year college course leading to a bachelor's degree in art, art history, design, visual communication, or related fields in a college or university of recognized standing may be substituted for the three years of general experience.

Courses of study in a recognized art institute or a college or university of recognized standing that have included an average of six semester hours per year in art, art history, design, visual communication and related fields may be substituted for the required general experience on the basis of one year of study for nine months of experience up to a maximum of four years of study for three years of experience.

Quality graduates

→Applicants who qualify for grade GS–5 on the basis of completing the full 4-year course leading to a bachelor's degree may also be eligible for grade GS–7 if their academic record clearly shows that they have superior learning ability. The pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.←

BASIS OF RATING

→No written test is required. Applicants will be rated on the basis of an evaluation of their education, experience, and personal qualifications in relation to the requirements of the specific positions for which they are being considered.←

The rating of experience will be based upon applicants' statements in the applications, samples of work if they have been required, and upon any additional evidence acquired by the Civil Service Commission

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

EDITORIAL ASSISTANCE SERIES

For supervisory [1] and nonsupervisory positions in the Editorial Assistance occupation, grades GS–2/9 [2]

Editorial Clerk
Editorial Assistant
Supervisory Editorial Clerk
Supervisory Editorial Assistant

DESCRIPTION OF WORK

Editorial clerks and assistants perform a wide range of clerical and editorial support work in preparing manuscripts for publication and in verifying information for inclusion in those publications. Duties include proofreading final copy or galley and page proofs against original manuscripts; preparing publication format by marking margins, spacing, size and style of print, etc.; editing for basic grammar and structural clarity; and verifying references, footnotes, and tabular material.

(Additional information on duties and responsibilities may be obtained from the position-classification standard for this occupation.)

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Except for the substitutions provided for below, candidates must have had qualifying experience in the amounts shown in the following table:

Minimum Amounts of Experience

Grade	*General Experience (years)*	*Specialized Experience (years)*	*Total Experience (years)*
GS–4	1½	½	2
GS–5	2	1	3
GS–6	2	2	4
GS–7 and above	2	3	5

General experience

General experience is clerical or office work of any kind which has required following and applying procedures and also required familiarity with rules of English grammar. Examples of qualifying experience include: (a) maintaining records; (b) receiving, screening, reviewing, and verifying documents; (c) searching for and compiling information and data; (d) giving out information on the activities of an organization; (e) preparing and/or verifying the validity of documents; (f) operation of office machines requiring performance of related clerical tasks.

Specialized experience

Specialized experience is that which has required the use of knowledge of the rules of grammar, procedures for preparing material for publication, techniques of information verification, and which has demonstrated the applicant's ability to perform at the level of the position to be filled.

Examples of qualifying specialized experience include: (a) reviewing drafts, manuscripts, letters, etc., for grammar, punctuation, and English usage; (b) preparing publication format by applying procedures and specifications; or (c) looking up sources for and checking accuracy of titles, authors' names, statistical data, and other factual information.

Quality of experience

For positions at any grade, the required amount of experience will not in itself be accepted as proof of qualification. The applicant's record of experience and training must show the ability to perform the duties of the position.

In addition, for positions at the GS–5 level and above, the candidate's total record must show either: (a) 1 year of specialized experience at a level of difficulty comparable to the next lower grade in the Federal service, or (b) 2 years of experience comparable to the second lower grade in the Federal service, of which at least 1 year must have been specialized experience.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

For the first two years of required experience, successful completion of resident education in a school above the high school level may be sub-

[1] For supervisory positions, the qualification standard for Supervisory Positions in General Schedule Occupations, in part III of Handbook X–118, should be used in conjunction with this standard.

[2] Qualification standards for Clerk, GS–300–1/3 are to be used for filling Editorial Clerk positions in grades GS–2/3.

stituted on the basis of ½ academic year of study (i.e., 18 weeks of substantially full-time study, 15 semester hours, or the equivalent) for 6 months of experience. To be substituted for the required 6 months of specialized experience, the total education must include a minimum of 3 hours of subjects closely related to the position being filled, such as english, english composition, journalism, graphics, library science, or other courses directly related to editorial assistance. No credit will be allowed for training which has been obtained only or primarily in remedial or refresher courses or in the basic skills of shorthand or typing. Therefore, 2 academic years of study, which included 3 semester hours in appropriate subjects, fully meets the experience requirements for GS–4.

For any experience required in excess of 2 years, successful completion of resident education in a school above the high school level may be substituted at the rate of 1 academic year of education for 6 months of experience, for a maximum of one year of experience. To substitute education for specialized experience, the total education must include a minimum of 6 hours of the type described above. Thus, a full 4-year course of this type of study may be substituted for a maximum of 3 years of the required experience (2 years of general and 1 year of specialized) and is fully qualifying for grade GS–5.

PERSONAL CHARACTERISTICS

Editorial assistance work is so detailed and meticulous that a thorough review would constitute a complete repetition of the entire process. Therefore, editorial clerks and assistants must be dependable and work accurately to an extremely high degree. The work also requires an unusual degree of patience, attention to details, and a liking for close and exacting work. Employees frequently work under rigid deadlines, last-minute rushes, and an amount of pressure that is not completely compatible with the extreme care and precision required by the work.

The qualities that make for success are interest and willingness to do the work as well as editorial skills and knowledges. In considering candidates, therefore, the candidate's personal characteristics are as important as the basic skills and knowledges. In filling these positions appointing officers should assure themselves by reference checks, personal interviews, or other appropriate means that applicants possess these qualities.

WRITTEN TEST

For competitive appointments at GS–4, a written test is required.

BASIS OF RATING

Competitors will be ranked on the following basis:

GS–4:	Written test scores.
GS–5 and above:	An evaluation of experience, education, and training in relationship to the duties of the position.

INSERVICE PLACEMENT

Use of written tests

The written test required at GS–4 should be waived for inservice placement actions.

Waiver of specialized experience requirements

The requirement for specialized experience for positions at grades GS–4 and GS–5 may be waived under the following conditions:

(a) For lateral reassignments when:
  (1) The candidate has had experience that provided a general familiarity with the work of the position for which he is being considered; and
  (2) A review of the candidate's experience and performance discloses the possession of the necessary skills and abilities, and evidences potential for successful performance of the work.

(b) For promotion actions, where it is clearly shown that:
  (1) Despite the lack of directly related experience, the candidate's background gives positive evidence that

he possesses to a superior degree the essential skills and abilities needed for the position; *and*

(2) The candidate has had experience that has provided a general familiarity with the work of the position for which he is being considered; and

(3) The overall evaluation of the candidate's background provides strong evidence that he can successfully perform the higher grade work without prolonged training.

GUIDE FOR EVALUATING CANDIDATES IN RELATION TO JOB REQUIREMENTS

Useful methods for evaluating candidates for clerical and technical positions are described in FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement. Several procedures, including job element rating, are suggested in this material, which may be appropriate for the varied types of Editorial Assistance positions.

The evaluation of a candidate for positions in the Editorial Assistance series should focus on those knowledges, skills, and abilities which indicate the candidate's ability to perform successfully the duties of the position. Thus, experience, education, and training should be evaluated in terms of what knowledges, skills, and abilities were used.

The actual skills and abilities needed in each position differ with the organization of the work and the type of work performed. Accordingly, the factors should be weighted in relationship to the requirements of the specific position to be filled. Some of the evaluation factors common to most of the positions are listed below:

—Ability in checking grammar,
—Ability to maintain a high level of accuracy in work requiring close attention to details,
—Ability to produce a high volume of accurate work,
—Ability to work under tight deadlines,
—Ability to follow detailed instructions,
—Ability to interpret policies, regulations, and instructions,
—Ability to operate independently,
—Ability to plan work,
—Knowledge of publication terminology.

Information about the necessary knowledges, skills, and abilities is available from a variety of sources including, but not limited to:

(1) Written performance appraisals and supervisory evaluations;
(2) Personal interviews with present and former supervisors;
(3) Review of Official Personnel Folders, personal qualification statements, applications, and other available written information;
(4) Confidential reference inquiries.

PHYSICAL REQUIREMENTS

Applicants must be physically able to perform efficiently the duties of the position, which are described elsewhere. Good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required for most positions; however, some positions may be suitable for the deaf. In most instances, an amputation of arm, hand, leg, or foot will not disqualify an applicant for appointment, although it may be necessary that this condition be compensated by use of satisfactory prosthesis. Applicants must possess emotional and mental stability. Any physical condition which would cause the applicant to be a hazard to himself or to others will disqualify for appointment.

Contract Specialist (all positions), GS-5/15

Contract Negotiator, GS-5/15

Contract Administrator, GS-5/15

Contract Termination Specialist, GS-5/15

Contract Price/Cost Analyst, GS-5/15

Procurement Analyst, GS-5/15

Supervisory Contract Specialist, GS-9/15

DESCRIPTION OF WORK

Positions in this series manage, supervise, or perform work involving the procurement of supplies, services, construction, or research and development using the formal advertising or negotiation methods; the evaluation of contract price/cost proposals; the administration or termination and close out of contracts; and the development of policies and procedures for this work. The work requires knowledge of the legislation, regulations, and methods used in contracting; and knowledge of business and industry practices, sources of supply, cost factors, and requirements characteristics.

Specializations

Positions in this occupation require a basic knowledge of all phases of the contracting process, i.e., the use of clauses and provisions, contracting methods including formal advertising and negotiation, cost or price analysis to evaluate the reasonableness of bids or proposals, contract administration requirements, and termination procedures, as well as knowledge of business and industry practices related to the products, services, construction, or research and development being procured. In addition to the basic knowledge of contracting and business practices, some positions perform the full range of preaward, price/cost analysis, and postaward functions, while others specialize in one functional area. (See descriptions below.)

Contract Specialists require a knowledge of preaward and postaward procedures to plan and conduct the contracting process from the description of the requirements through contract delivery.

Contract Negotiators require a specialized knowledge of negotiation techniques to meet and reach agreement through discussion with a proposed contractor on the pricing and performance terms, and to set forth all these terms in a procurement document.

Contract Administrators require a specialized knowledge of postaward contracting procedures to oversee or ensure compliance with the terms of contracts, to determine the reasonableness of and to negotiate claims, to resolve disputes and other problems concerning obligations of either the Government or the contractor, and to negotiate contract modifications.

Contract Termination Specialists require a specialized knowledge of postaward procedures and negotiation techniques to represent the Government in terminations for convenience or default, claims and settlements.

Contract Price/Cost Analysts require a specialized knowledge of price and/or cost analysis techniques to evaluate price and/or cost proposals, contract changes, repricing actions and final contract pricing; to obtain and review data from auditors and technical specialists; to recommend cost and profit negotiation objectives; to conduct or participate in negotiations on cost and/or price issues; or to develop and advise on policies and procedures relating to these functions.

Procurement Analysts require a broad knowledge of procurement policies and procedures to plan, analyze, or evaluate procurement programs; review proposed contractual actions for conformance with regulatory requirements and procurement practices; or develop policies and procedures or provide advice and guidance to subordinate activities concerning a variety of procurement issues.

Additional information concerning the work of contract specialists can be found in the position classification standard for this series.

KNOWLEDGE, SKILLS, AND ABILITIES

Knowledge and Skill

The requirements contained in this standard constitute the core knowledge and skill in procurement required for all positions in this series, i.e., knowledge of preaward, postaward, and price/cost regulations, and business and industry practices relating to products, services, construction, or research and development being procured. The requirements are keyed to the progression of grade levels in the classification standard for this occupation.

At the GS-5 entrance level, knowledge and skill requirements are general in nature and focus on basic analytical abilities, general problem solving ability, arithmetic or quantitative skills, and communicative skills. For succeeding grade levels the knowledge and skills required become more specialized. Education may be substituted for practical work experience through grade GS-9 provided the education demonstrates possession of the required knowledge and skill.

Experience Criteria

The experience criteria in this standard reflect minimum requirements for individuals to obtain and demonstrate the knowledge and skills required at the grade level sought. For entrance positions GS–5, the requirement gives employing agencies minimum assurance that applicants can perform the work.

It also provides each applicant with an equal amount of time to develop and demonstrate possession of the required knowledge and skills.

For succeeding grade levels, experience criteria are based on the premise that demonstrated proficiency in the application of knowledge and skills at a given level indicates likelihood of success in similar work at the next higher level.

These criteria are based on the premise that the performance of procurement related work and training assignments validly demonstrate the individual's ability to learn and competently perform the work of this occupational field.

Substitution of Education for Experience

The nature and quality of basic education is most valuable in evaluating candidates at the entrance levels (GS–5 and GS–7) and to some extent at GS–9. Undergraduate training is of less significance at succeedingly higher levels, as compared with experience.

Several institutions offer programs specifically in Government procurement. Those courses which are available and which deal with the fundamental principles and concepts of procurement make a significant contribution to a candidate's capability for problem solving and serve as an excellent base for future development. Credit should be given for procurement course work, as well as other directly related course work, when evaluating candidates for appointments or promotions.

Promotions

The provisions of 5 C.F.R. 300, Subpart F, must be complied with concerning the rate at which employees may be promoted, irrespective of their qualifications.

MINIMUM QUALIFICATION REQUIREMENTS

GS–5 Level

A. Three years of general experience, one year of which must be equivalent to GS–4. General experience is experience in administrative, technical, or other responsible work which provided opportunity for the applicant to gain and demonstrate:
   —Knowledge of procurement practices and procedures;
   —Knowledge and skill to collect and analyze data, relate data to established guides, and evaluate the significance of the collected data;
   —Knowledge and skill to draw conclusions and make recommendations by analyzing facts and conditions, and make suggestions for corrections or improvements;

—Knowledge of arithmetic practices used in business to compare prices, including discounts and warranties;
—Knowledge and skill to apply guideline material by reading and interpreting regulations and technical material, and translating the guidance into specific actions;
—Knowledge and skill to present technical information in written form;
—Skill in dealing with others in a work relationship to present information orally and accomplish a given purpose.

OR

B. Completion of a full four year course of study in an accredited college or university that meets all requirements for a bachelor's degree in any field.

OR

C. A time equivalent combination of experience and education as defined in A or B above. In combining education with experience, an academic year of study is equivalent to nine months experience.

The knowledge and skill required in A above may have been gained in a variety of administrative or technical support work. Experience of a routine nature (i.e., work which primarily involved typing, filing, or procedural clerical work) is not qualifying.

While not inclusive, the following types of work experience are illustrative of ways in which the basic skills and underlying knowledge may have been obtained:

—Purchasing, rental, or lease of supplies, services, and equipment through informal open-market methods, including imprest fund (cash) accounts, orders under blanket purchase agreements (charge accounts), orders under indefinite delivery contracts such as Federal Supply Schedules, or other simplified purchase procedures.
—Substantive technical support work for purchasing, procurement, contract negotiation, administration, or termination functions which included preparing, controlling, verifying or abstracting procurement documents, reports, or industry publications; assembling product and price data for procurement negotiations; reporting on performance of contractors in meeting terms of contracts; and similar work.

The following are examples of related types of work experience which in some cases may have provided the basic skills and knowledge required by the specific position.

—Work of an accounting nature requiring a basic understanding of existing accounting systems and procedures to examine, verify, and maintain accounts and accounting data, or to perform technical audit functions, develop or install revised accounting procedures, or similar work.
—Examining work including the review for accuracy and adequacy of documentation or citations, compliance with regulations, and justification of vouchers, invoices, claims, and other requests for payment for goods and services provided to or by the Government, or satisfaction of breach of contract or default in fulfilling contractual obligations, e.g., unauthorized substitution of materials specified in a contract or change from contracted price.
—Technical support work for property management, inventory management, material coordination, or similar work involving knowledge of supply operations, program requirements, established policies, management techniques, and ability to deal with a variety of operating officials regarding program needs.

GS-7 Level

A. In addition to the requirements for GS-5, a background which includes one year of work no lower than GS-5 or the equivalent and demonstrates:
—Knowledge of commonly used contracts and clauses, methods and pertinent

regulatory and guideline material sufficient to perform assignments of an advanced trainee nature for which there are clear precedents;

—Knowledge of pertinent product characteristics and sources of supply sufficient to identify commercial or other established sources and to solicit bids or quotations for repetitive items or services when specifications are well established, e.g., office machines, automotive equipment, medical supplies, or minor repairs of buildings or roads.

—Knowledge of price analysis techniques and commercial business practices sufficient to evaluate price data on the basis of comparative prices, standard price lists, or previous prices.

—Skill in summarizing, analyzing, and evaluating data to prepare documentation, justifications, and terms and conditions.

—Demonstrated skill in forming effective interpersonal relationships and coordinating work efforts.

OR

B. Successful completion of one full academic year of graduate education in an accredited college or university with major study in a directly related field, e.g., procurement, business administration, marketing, industrial management, or accounting.

OR

C. A combination of graduate study, as indicated in B above, and a background of work experience which demonstrate possession of the knowledge and skill required to perform the work of the position to be filled.

OR

D. Meeting one of the superior academic achievement provisions at the baccalaureate level provided the pertinent criteria in Section III, Part II, of this handbook are fully met.

In addition to directly applicable experience obtained at the next lower grade in the career ladder, the knowledge and skill may have been acquired through progressively responsible work experience in activities that are closely related to procurement, such as accounting, auditing, program analysis, grants management, logistics management, supply, engineering, manufacturing, quality assurance, industrial specialist, production control, equipment evaluation, inspection, industrial property management, operations research, or statistics.

Such experience is creditable when the work requires: (1) familiarity with basic contracting work methods and operating procedures and (2) familiarity with basic business practices sufficient to perform the duties of the position to be filled.

GS-9 Level

A. In addition to the requirements for GS-7, a background which includes one year of work no lower than GS-7 or equivalent and demonstrates that the candidate possesses the following:

—Knowledge of established principles and accepted practices of contracting work including the application of formal advertising and negotiation techniques sufficient to develop, administer, or terminate contracts which are well precedented;

—Knowledge of a variety of moderately complex contracts (e.g., firm fixed-price, indefinite quantity, indefinite delivery or cost-plus-fixed-fee); the use of applicable clauses and provisions (e.g., special packaging instructions, use of Government-furnished property, or first article testing or preproduction samples); and special program considerations (e.g., small and disadvantaged business set-asides or labor surplus areas) sufficient to recommend contract award or monitor contract performance.

—Knowledge of business practices and market conditions, including commercial market sources or other competitive sources to obtain adequate price competition or establish reasonableness of price, and to evaluate contractor responsiveness and responsibility sufficient to recommend contract award.

—Knowledge of price and/or cost analysis sufficient to evaluate price and/or cost proposals when historical data and precedents are available and applicable for standard commercial or specialized items having detailed specifications or special performance requirements, e.g., spare parts, hospital equipment, items modified to specification, or minor alterations and maintenance of buildings and equipment.

—Demonstrated skill in interpreting and explaining a variety of procurement procedures and technical requirements, in negotiating preaward or postaward contractual actions, and in making independent judgments or evaluations concerning such things as the extent to which contractor's proposals, management systems, or performance conform to requirements.

OR

B. Successful completion of two full academic years of graduate education or completion of all requirements for a master's or equivalent degree in an accredited college or university with major study in procurement or in a field directly related to the position to be filled. Directly related means that the completed course work provided both the type and level of knowledge and skills required in the work of the position to be filled.

OR

C. An appropriate combination of graduate study and work experience which provided the required knowledge and skill.

OR

D. Completion of all requirements for an LL.B. or J.D. degree.

AND

E. Evidence that the candidate possesses any selective factors appropriate to the position to be filled.

Alternate types of work experience which may have provided some or all of the knowledge and skill include progressively responsible work in private industry in such capacities as a contract specialist, accountant or auditor, or other meaningful, comparable functions. Such experience should have clearly equipped candidates with the knowledge and skill applied in the position to be filled.

In addition, work of a responsible nature in activities closely related to contracting, such as are described above for GS-7, may have provided some or all of the required knowledge and skill. However, the knowledge and skill required are of a higher level and more specialized nature than those at GS-7, which typically involve advanced trainee assignments. Therefore, candidates for GS-9 who offer such experience will be required to demonstrate knowledge and skill equivalent to those described in A above through significant and concrete work accomplishments, e.g., special projects, working groups, or detail assignment which involved work related to contracting.

GS-11 Level and Above

A. In addition to the requirements for GS-9, for the GS-11 level and above, a background which includes one year of work experience or equivalent to the next lower grade in the normal line of promotion, and which demonstrates possession of the following:

—Thorough knowledge of contracting methods, contract types, and contracting principles and procedures applicable to the full range of preaward, postaward, or price/cost analysis activities involving complex and diversified

products, services, or construction (e.g., engineering and manufacturing requirements of major types of equipment, technical services or services involving major equipment and vehicle overhaul, research and development including technology development or demonstration projects, design and construction of buildings requiring architect and engineering services, complex computerized management information and process control systems or a system in support of research and development, or large-scale procurements of specialized commodities or services to meet the consolidated requirements of the agency, department, or departments).

—Familiarity with business practices and market conditions applicable to program and technical requirements sufficient to identify or develop new sources; evaluate the responsibility of the contractor to perform the contract in terms of present commitments, financial soundness, adequacy of management systems, and capacity of facilities; determine the reasonableness of price and/or cost proposals including evaluation of individual cost elements; evaluate the progress and performance of the contractor; or evaluate the extent of work completed and negotiate settlements.

—Or for some positions—

—Intensive and detailed knowledge of special programs or a specialized area of contracting and skill in applying this knowledge to the resolution of complex problems or development of contracting plans or procedures in the role of a technical specialist or consultant.

—Thorough knowledge of trends, program requirements, and operating policies and procedures to coordinate plans and programs with a variety of related activities, e.g., program or technical offices, other contracting specialists, legal counsel, small and disadvantaged business representatives, auditors, transportation specialists, subordinate activities, or higher headquarters.

AND

B. Evidence of possession of any selective factors appropriate to the position to be filled.

The knowledge and skill required for positions at GS-11 and above are typically gained through progressive work assignments in the GS-1102 series. This does not preclude obtaining directly comparable knowledge and skill through work in other series. For example, in some instances engineers or industrial property management specialists perform substantial analyses, technical evaluations, and monitoring functions of contractors performing work for the Government, sufficient to obtain qualifying experience for this occupation. Responsible experience in private industry contracting work may also have provided the requisite knowledge and skill.

SUPERVISORY POSITIONS

For supervisory positions use the qualifications standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X-118 in conjunction with this standard.

SELECTIVE FACTORS

Some contract specialist positions require highly specialized knowledge and skill above that provided by application of the basic qualification standard to the extent that these become a primary consideration in identifying qualified candidates. In such

cases, the use of selective factors as screen-out elements may be appropriate provided:

—The knowledge, skills, and abilities are essential for satisfactory performance of the work;

—The selective factors are job-related; and

—The knowledge, skills, and abilities could not be acquired on the job without undue interruption of the work or prolonged training.

Normally, selective factors will be applied only to positions at GS-9 and above. Trainee positions by their nature usually do not satisfy the criteria for the use of selective factors. For example, in filling full performance level positions in price/cost analysis requiring particular competence in the use of advanced price and/or cost techniques (e.g., to perform life cycle cost analysis, should cost studies, or parametric estimating), or in a specific commodity field (e.g., aircraft, textiles, or electronics), it may be appropriate to restrict consideration to those candidates possessing knowledge and skill related to these areas. However, it would be inappropriate to use selective factors when the purpose of the positions is to receive training leading to the attainment of the required knowledge and skill. For additional information in ranking of eligibles, refer to the section titled Evaluating Candidates.

BASIS OF RATING

Candidates will be rated based on the extent and quality of their experience, education, and accomplishments in relation to the requirements of the position. Such ratings will be based upon statements of candidates in their applications, upon qualification inquiries, and upon any additional information that may be secured by the rating examiner.

PHYSICAL REQUIREMENTS

The following physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions. Applicants and employees must have the capacity to perform the essential functions of the position without risk to themselves or others. In most cases, a specific medical condition or impairment will not automatically disqualify an applicant or employee. A physical condition or impairment may be disqualifying only if the condition, for good medical or management reason, precludes assignment to or warrants restriction from the duties of the specific position. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation shall also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

In positions where there is exposure to environmental agents for which there are occupational/environmental standards which require protective measures or medical surveillance, applicants and employees shall undergo initial and periodic medical evaluation in accordance with the surveillance requirements. Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in FPM Chapter 930.

EVALUATING CANDIDATES

For both competitive and inservice placement, the evaluation of experience, training, and education should focus on those factors which reflect an applicant's ability to successfully perform the duties of the position to be filled. The required amount of experience will not in itself be accepted as proof of qualification. FPM Supplement 335-1 and 271-2 contain detailed information on candidate evaluation methods.

The evaluation process should start with an analysis of the duties and responsibilities of the position to determine the related knowledge, skills, and abilities. The analyses should also identify any selective factors essential to satisfactory performance, and the appropriate

quality ranking factors, i.e., those factors which distinguish the better qualified applicants from those who may meet only the minimum requirements. Quality ranking factors will vary according to the nature and grade level of the position to be filled.

Evaluating Work Experience

It is important that the evaluation process go beyond a cursory examination of job titles of positions held in the Federal service or private sector. Potential sources of information about a candidate's qualifications include supplemental questionnaires, supervisory performance appraisals, reference inquiries, and interviews with the candidate and with present and former supervisors.

Position classification standards provide information useful in evaluating the level of prior work experience. Relevant experience obtained in other occupations in the Federal service, in the military, or experience obtained as an unpaid volunteer may be evaluated using the classification standard for this or other occupational series.

Evaluation of candidates for positions at GS-5 and GS-7 should be based on evidence indicating probable success in learning quickly the technical work and progressing to higher level assignments in the work of the full performance positions in the career ladder. Other things being equal, candidates who can be expected to progress to full performance proficiency most quickly will usually be distinguished by the caliber and extent of work experience which provided the knowledge and skill typically used in the work of these positions.

Evaluation of candidates for positions at GS-9 and above should be based on knowledge and skill specific to the position to be filled, and as appropriate, consideration of any selective factors. Required knowledge, skills, and other characteristics vary in importance from one position to another, between procurement functional programs, or according to the grade level involved. In evaluating the level and quality of a candidate's background, consideration should be given to such factors as:

(1) *The nature, scope, and functional specialization of the experience:* Whether the candidate's experience has involved more than one aspect of contracting (negotiation, administration, termination, price analysis, or staff work); the extent to which the candidate specialized in the procurement of certain services, supplies, or equipment; whether the experience included carrying the entire transaction from receipt of purchase request through to completion; whether the experience involved primarily providing assistance to higher grade employees; whether the assignments were limited to certain parts of large contracts.

(2) *Knowledge of contracting regulations, procedures, and policies:* The degree to which the candidate's work has involved application of knowledge of contracting regulations, procedures, and policies; and the degree to which the candidate had to apply judgment in the application of this knowledge.

(3) *Knowledge of different types of contracts and contracting methods:* The degree to which the candidate's work has involved the use of various types of contracts and contracting methods, including formal advertising and negotiation; and the degree to which the candidate had to apply judgment in the selection of the most appropriate method of procurement.

(4) *Knowledge of business practices and supply sources:* The degree to which the candidate's experience has required knowledge of arithmetic or quantitative methods, business practices, organization, management, labor skills, production experience, financial responsibility, markets, availability of services and supplies, distribution patterns, and pricing techniques and structures; whether the candidate's experience demonstrated an understanding of the differing effects these factors can have on the procurement processes, and the interrelation-

ships between the many factors present in the process.

(5) *Ability to meet and deal effectively with others:* The degree to which the candidate has demonstrated ability to deal with a variety of people in many circumstances, such as coordinating work with that of others or persuading others to adopt a recommendation; the degree to which the candidate has demonstrated ability to deal with pressures exerted by others.

(6) *Analytical ability:* The degree to which the candidate has demonstrated the ability to analyze facts, alternatives, and problems independently, and to arrive at conclusions which form the basis for decisions and recommendations; the relative intensity of such analysis, the availability of precedents to guide the analysis, and the extent to which supervisory assistance was available.

(7) *Decision-making ability:* The degree to which the candidate has demonstrated the ability to evaluate alternative methods of solving problems, and to foresee advantages and disadvantages of alternative courses of action; whether the candidate has demonstrated the ability to consider pertinent facts, the ideas of others, and precedents in making a decision or recommendation; whether the candidate has demonstrated the ability to make decisions under pressure and within deadlines.

(8) *Ability to speak and write effectively:* The degree to which the candidate has demonstrated ability to express ideas clearly and effectively, both in writing and orally; the extent of the candidate's ability to explain decisions, procedures, and requirements in such a way as to gain a favorable response.

Evaluating Education and Training

Evaluation should focus on the job-relatedness of education, training, or self-development activities which provided familiarity with contracting and business principles, techniques, and terminology. Extra credit may be awarded in the ranking process to those candidates offering specific course work which is related to the work of this occupation to the extent that such course work is related to the position being filled, for example procurement courses.

Home study and correspondence education is acceptable in meeting the educational substitutions, when such study is accepted for credit as the equivalent to education completed in an accredited college or university.

Inservice Placement

For inservice placement actions, applicants who have experience in clerical, purchasing, or technical support positions related to procurement work may be laterally reassigned to this occupation at the GS-5 or GS-7 level provided:

—The experience has provided a knowledge of procurement procedures, terminology, and general terms and conditions of buying, with the candidate demonstrating potential for probable success at higher levels;

—The candidate has the demonstrated ability to exercise mature judgment, and has potential for dealing with others in person-to-person relationships;

—The candidate is immediately given intensive training in the particular phase of procurement to which assigned. The training must be clearly designed to provide the difference between what the trainee already knows by virtue of prior experience or education, and what he or she needs to know to perform successfully at the grade level to which assigned.

INDUSTRIAL PROPERTY MANAGEMENT SERIES[1]

For Positions in the Industrial Property Management occupation, GS–1103, grades GS–5/15

Industrial Property Management Specialist

Industrial Property Clearance Specialist

(Also "Supervisory" or "Officer" type positions)

DESCRIPTION OF WORK

Duties of these positions are to administer, supervise, or perform technical work in the administration of contract provisions relating to control of Government property in the possession of contractors. Work performed by the *Industrial Property Management Specialist* includes, for example: (1) Approving the contractor's property control system; (2) examining and evaluating the system's actual application to assure compliance with prescribed requirements; (3) taking necessary action to correct the improper use and control of Government property; or (4) providing staff leadership and technical guidance over property administration matters.

The *Industrial Property Clearance Specialist* performs work concerned with the disposition of Government-provided contractor inventory remaining in the contractor's plant after change, completion, or termination of a contract. Disposition is effected, in accordance with terms of the contract, by sale, utilization, donation, or abandonment of the property.

(*Note:* More detailed descriptions of work for these positions are contained in the position-classification standard for the Industrial Property Management Series, GS–1103.)

EXPERIENCE, EDUCATION, AND TRAINING REQUIREMENTS

Except for the substitution of education provided, candidates must have had general and specialized experience of the length specified in the table below, and of the nature described in the statements that follow:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11/15	3	3	6

General experience

General experience includes experience which has provided a general knowledge and understanding of administrative, professional, analytical, or other work related to general business and/or industrial practices; and which has demonstrated ability to deal satisfactorily with others. Such experience may have been gained in purchasing, production, accounting, legal, financial, merchandising, industrial planning, engineering, inventory control, quality control, data processing, inspection of material, or similar activities. It also includes journeyman experience in a trade or craft that provided knowledge of industrial operations and practices related to control of property.

Specialized experience

For Industrial Property Management positions:

—Knowledge of and ability to evaluate, monitor, administer, or coordinate industrial property management programs; or to develop and implement policies and procedures for property control systems;

—Knowledge of modern techniques in business and property management and control, including, e.g., manual and automated production, accounting, planning, purchasing, inventory, and record systems; or ability to use statistical techniques and methods in evaluating property control systems.

For Industrial Property Clearance positions:

—Knowledge of and ability to evaluate, monitor, administer or coordinate industrial property clearance programs; or to develop and implement policies and procedures for

[1] This standard supersedes the standard for this series which was issued in September 1969.

property disposal systems or plant clearance activities;

—Knowledge of the values and uses of property items, merchandising methods, marketing techniques and outlets, or general trade practices related to the disposition of property; knowledge of Government policies, regulations, and procedures for the utilization, sale, donation or other disposition of surplus property.

—Knowledge of Government sales policies, regulations and methods.

For both specializations:

—Practical knowledge of machinery, tools, materials, or other specialized equipment or real property; and ability to understand and evaluate business and industrial organizations and practices relating to the acquisition, use, maintenance, and disposition of property.

—Knowledge of contract provisions and Government procurement programs; ability to interpret and apply contract clauses and Government procurement regulations pertaining to Government property in the possession of contractors.

For example, specialized experience may have been gained in such activities as the following:

a. Work involved in developing, establishing, evaluating, approving, coordinating, or administering industrial property management programs, property control systems and procedures, or property disposal activities.

b. Work in an administrative or supervisory capacity for Government, industry, or institutions that primarily involved responsibility for the control, utilization, maintenance, disposal, and accountability for industrial property of the types supplied contractors by the Federal Government.

c. Work involved in negotiation or administration of contracts containing property clauses which required a knowledge of the methods for controlling and accounting for the acquisition, use, maintenance, or disposition of Government-owned industrial property.

d. Technical work involved in the investigation and evaluation of production processes, methods, materials requirements, machine tooling and systems to determine the most efficient use and control of equipment, facilities, and materials.

e. Accounting, statistical control, or automatic data processing work in an industrial or related activity when such work has provided direct association with or knowledge of industrial property or property control systems, or industrial property disposal activities.

f. Production control, quality control, property disposal, or other similar work which has provided direct knowledge of industrial techniques or methods for controlling receipt, use, maintenance, or disposition of industrial property.

ADDITIONAL ABILITIES AND SKILLS REQUIRED

Above entrance or training levels, the candidate's experience must also demonstrate that he possesses the following abilities or skills:

(a) Ability to establish and maintain effective working relationships such as must be maintained with contractors, their managerial personnel, and other contractor or Government employees;

(b) Ability to deal with others in a tactful and persuasive manner;

(c) Ability to communicate effectively both orally and in writing, such as the ability to prepare effective written reports and to make oral presentations of technical information;

(d) Ability to work independently and to make sound judgments and decisions;

(e) Resourcefulness and adaptability in dealing with changing situations.

LEVEL AND QUALITY OF EXPERIENCE

For positions through GS–11, at least 6 months of the specialized experience must have

been at a level of difficulty comparable to that of work at the next lower grade, or 1 year at a level of difficulty comparable to the second lower grade in the Federal service. For positions in grades GS–12 through GS–15, at least 1 year of the required specialized experience must have been at a level of difficulty comparable to that of work at the next lower grade in the Federal service.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. Education successfully completed in a residence school above high-school level which included an average of 6 semester hours (or its equivalent) per year in business administration, accounting, law, industrial management, engineering, marketing, or closely related fields may be substituted for experience at the rate of 1 academic year of study for 9 months of experience up to a maximum of 4 years of study for 3 years of *general* experience.

Successful completion of all requirements for a bachelor's degree in any subject area which will permit the employee to perform the duties of the particular position may be substituted in full for general experience at GS–5.

2. Full-time [2] graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For 1 year of specialized experience*
One full academic year of graduate education in production management, industrial management, business administration, statistics, or other subjects related to the field of work. (This amount and kind of education meets all the requirements for grade GS–7.)

b. *For 2 years of specialized experience*
Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education, which is in fields described in paragraph "a" above. (This amount and kind of education meets all the requirements for grade GS–9.)

3. The Superior Academic Achievement Standard in section III, part II, Instructions to Users, of this handbook, is applicable at grade GS–7.

4. Completion of a total of least 6 years of pre-legal and legal education which meets all the requirements for an LL.B. or J.D. degree will provide eligibility in full at grade GS–9.

WRITTEN TESTS

A written test is required for grades GS–5 and GS–7. It should be waived for inservice placement actions but not for appointments outside the register. No written test is required for positions above GS–7.

BASIS OF RATING

Candidates for GS–5 and GS–7 will be rated on the basis of written test scores.

Candidates for positions at GS–9 and above will be rated on a scale of 100 on the quality of their experience and education, based upon information contained in their applications and supporting papers, and information from former employers and associates.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

[2] Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.

GUIDE FOR EVALUATING CANDIDATES FOR INSERVICE PLACEMENT

Candidates for inservice placement should be evaluated on the basis of their total qualifications as related to the position to be filled. (NOTE: Evaluation of inservice candidates for lower-grade positions should be made by determining the extent to which previous experience and training showed potential to perform the work of the particular position.)

In evaluating candidates, consider:

1. The nature, difficulty, and scope of the work which the candidate has performed including, for example: extent to which the candidate's experience has included surveillance and control of a contractor's property control system; the complexity of the contractor's property control system; and the variety of different categories of property controlled.
2. Extent to which the candidate's experience has demonstrated a knowledge of property control systems and procedures, and a knowledge of the pertinent equipment, materials, or property involved.
3. Extent to which the candidate's experience has demonstrated a knowledge of statistical sampling techniques, or electronic data processing systems and techniques.
4. Extent to which the candidate's experience has demonstrated the ability to interpret and apply contract provisions and Government procurement regulations, particularly as they relate to Government property in the possession of contractors, or disposal of Government property from contractor plants.
5. Extent to which the candidate's experience has demonstrated the ability to dispose of excess or surplus property by sale, utilization, donation or abandonment of property items following Government regulations and procedures.
6. Extent to which the candidate's experience has demonstrated the ability to negotiate and communicate effectively both orally and in writing, and to effectively maintain good working relationships with representatives of the contractor and other Government officials.
7. Extent to which the candidate's experience has demonstrated the ability to work independently and make sound recommendations related to surveys, special investigations, or other studies and particularly those concerning control of property in possession of contractors.

PROPERTY DISPOSAL SERIES*

For Positions in the Property Disposal Series, GS–1104, Grades GS–5/15
Property Utilization Specialist
Property Marketing Specialist
Property Disposal Specialist
(Also "Supervisory" and "Officer" positions)

DESCRIPTION OF WORK

Duties of these positions involve administrative, managerial, or technical work concerned with the utilization, donation, merchandising, sale, marketing or other disposition of excess or surplus personal property. Work covered by this occupation primarily requires a knowledge of merchandising and marketing methods and techniques, and the policies, programs, regulations and procedures for the disposition of excess or surplus property. Some positions also require a knowledge of property characteristics and uses, including identification and segregation of scrap.

(*NOTE:* More detailed descriptions of work for these positions are contained in the position-classification standard for the Property Disposal Series, GS–1104.)

EXPERIENCE, EDUCATION, AND TRAINING REQUIREMENTS

Except for the substitution of education provided, candidates must have had general and specialized experience of the length specified in the table below, and of the nature described in the statements that follow:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11/15	3	3	6

*This standard supersedes PES 1912 issued 3/16/54; and X–118 qualification standards for the Property Disposal Series, GS–1104, issued in April 1954 and January 1956; and for the Property Utilization Series, GS–2070, pages 4/5 of the standards for technical supply positions issued with TS 121, December 1968.

General experience

Includes experience which has provided a general knowledge and understanding of administrative, professional, analytical, or other similar work related to property utilization or marketing activities; inventory control, storage or supply management, purchasing, production, accounting, legal, financial, industrial planning, engineering, quality control, data processing, inspection of material, or similar activities.

Specialized experience

Includes that experience which provides the candidate with knowledges and abilities required to perform work at the grade level for which application is made. This experience should demonstrate that the candidate possesses knowledges and abilities such as:

1. Knowledge of and ability to develop, administer, evaluate, monitor, or coordinate programs, policies, regulations, and procedures concerned with the utilization, donation, sale, or other disposition of excess or surplus personal property.
2. Knowledge of the values and uses of personal property items, merchandising methods, marketing techniques and outlets, or general trade practices related to the disposition of excess or surplus property.
3. Practical knowledge of equipment, machinery, tools, materials, or other items of personal property sufficient to examine, classify, segregate, identify and display the property for utilization, donation, or sales activities.
4. Knowledge of Federal Government sales methods; and ability to interpret and apply contract clauses and Government sales and procurement regulations.

For example, specialized experience may have been gained in such activities as the following:

a. Work involved in developing, establishing, evaluating, approving, coordinating or administering programs, regulations, and procedures concerned with the redistribution, transfer, rehabilitation, donation, sale, abandonment, or destruction of

excess or surplus personal property (including waste and scrap materials).

b. Technical or administrative work for Federal, State, or local governments, or other institutions, concerned with the reutilization of excess or surplus personal property. This includes, for example, technical work in determining that portion of personal property which has utilization potential; requirements of various Federal, State or other eligible organizations for property or components of the property; additional or expanded uses for the property; practicability of repairing, converting, or rehabilitating the property; and various cost factors such as transportation and handling costs required to get property to using agencies, cost of repair or rehabilitation, cost of promoting utilization versus costs for new procurement.

c. Technical work for Government or private firms related to the most appropriate means of merchandising excess or surplus items. This includes, for example, technical work in the segregation, classification and identification of usable property and scrap (including metals); lotting property in accordance with practices commonly followed; describing property in excess bulletins or sales catalogs; selecting proper sales methods and suggested sales prices; arranging advertising, layout and display of property.

d. Technical work for Government or private firms which has provided a knowledge of Federal Government sales and procurement regulations by sealed bid, spot bid, auction, or negotiation. This includes, for example, selecting terms, conditions, provisions, and instructions of sales of surplus and exchange sale property; soliciting, receiving, and reviewing bids; conducting sales; making awards; executing, signing, and administering contracts; determining default and termination actions against contractors; receiving and reviewing appeals, mistakes in bids, claims, and disputes.

e. Technical work for Government or industry related to the systematic analysis of sales methods, market areas, price trends, merchandising techniques, alternate usage data and buyer interests for the purpose of improving utilization and sales operations.

f. Supply or storage management, cataloging, quality control, or other work which provides a practical knowledge of equipment, materials, or other items of personal property; and the knowledges and abilities required in the proper care, handling, storage, and accountability for excess or surplus personal property.

ADDITIONAL ABILITIES AND SKILLS REQUIRED

Above entrance or training levels, the candidate's experience must also demonstrate that he possesses the following abilities or skills:

(a) Ability to deal successfully with representatives of the Federal Government; with officials of local, State, or foreign governments; with representatives of industry or commerce; or with individual buyers.

(b) Ability to establish and maintain effective working relationships, and to deal with others in a tactful and persuasive manner.

(c) Ability to communicate effectively both orally and in writing.

LEVEL AND QUALITY OF EXPERIENCE

For positions through GS–11, at least 6 months of the specialized experience must have been at a level of difficulty comparable to that of work at the next lower grade, or 1 year at a level of difficulty comparable to the second lower grade in the Federal service. For positions in grades GS–12 through GS–15, at least 1 year of the required specialized experience must have been at a level of difficulty comparable to that of work at the next lower grade in the Federal service.

PROPERTY DISPOSAL SERIES

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. Education successfully completed in a residence school above high school level which included an average of 6 semester hours (or its equivalent) per year in such fields as marketing, business administration, commerce, accounting, law, industrial management, engineering, economics, statistics, or closely related fields, may be substituted for experience at the rate of 1 academic year of study for 9 months of experience up to a maximum of 4 years of study for 3 years of *general* experience, or for all experience requirements for grade GS–5.

2. Full-time* graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For 1 year of specialized experience:*
One full academic year of graduate education in marketing, business administration, commerce, accounting, industrial management, engineering, economics, statistics or other subjects related to the field of work. (This amount and kind of education meets all requirements for grade GS–7.)

b. *For 2 years of specialized experience:*
Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education, which is in fields described in paragraph a above. (This amount and kind of education meets all requirements for grade GS–9.)

*Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for one year of specialized experience.

3. The Superior Academic Achievement Standard in section III, part II, Instructions to Users, of this handbook, is applicable at grade GS–7.

4. Completion of a total of at least 6 years of pre-legal and legal education which meets all the requirements for an LL.B. or J.D. degree will provide eligibility in full at grade GS–7.

WRITTEN TESTS

A written test is required for grades GS–5 and GS–7. It should be waived for inservice placement actions but not for appointments outside the register. No written test is required for positions above GS–7.

BASIS OF RATING

Candidates for GS–5 and GS–7 will be rated on the basis of written test scores.

Candidates for positions at GS–9 and above will be rated on a scale of 100 on the quality of their experience and education, based upon information contained in their applications and supporting papers, and information from former employers and associates.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

GUIDE FOR EVALUATING CANDIDATES FOR INSERVICE PLACEMENT

Candidates for inservice placement should be evaluated on the basis of their total qualifications as related to the position to be filled. (*Note:* Evaluation of inservice candidates for lower-grade positions should be made by determining the extent to which previous experience and training showed *potential* to perform the work of the particular position.)

In evaluating candidates, consider the nature, difficulty, and scope of the work which the candidate has performed, for example:

1. Extent to which the candidate's experience

has included responsibility for management of a property disposal holding activity, and the variety of different categories of property involved.

2. Extent to which the candidate's experience has demonstrated a knowledge of the pertinent equipment, machinery, tools, materials, scrap metals, or other items of property.
3. Extent to which the candidate's experience has demonstrated a knowledge of utilization, rehabilitation, or donation techniques and procedures; and the ability to promote maximum utilization of excess or surplus property within Federal agencies, or eligible donee organizations.
4. Extent to which the candidate's experience has demonstrated a knowledge of merchandising techniques and procedures; and the ability to identify, segregate, lot, describe, and promote the disposition of excess or surplus property.
5. Extent to which the candidate's experience has demonstrated a knowledge of Federal sales methods and procedures; and ability to interpret and apply contract clauses and Government sales and procurement regulations.
6. Extent to which the candidate's experience has demonstrated the ability to communicate effectively both orally and in writing; and the ability to effectively represent his organization on interagency or intra-agency committees, or in negotiations or meetings with high level officials in his own agency, other Federal agencies, State, local, or foreign governments.
7. Extent to which the candidate's experience has demonstrated the ability to work independently and to make sound recommendations related to developing, evaluating, or implementing disposal policies, regulations, and procedures.

For positions in the Purchasing Occupation, GS–1105, grades GS–4/12

Purchasing Agent

Supervisory Purchasing Agent

DESCRIPTION OF WORK

Purchasing agents purchase supplies, services, and equipment through (a) informal open-market methods and (b) formal competitive bid procedures. The primary objective of the work is to assure immediate delivery of goods and services in direct support of operational requirements of Federal agencies. The work requires knowledge of commercial supply sources and of common business practices with respect to sales, prices, discounts, deliveries, stocks, and shipments.

EXPERIENCE, EDUCATION AND TRAINING REQUIREMENTS

Grade	*General experience (years)*	*Specialized experience (years)*	*Total experience (years)*
GS–4	2	0	2
GS–5	2	1	3
GS–6	2	2	4
GS–7	2	3	5
GS–8 and above	2	4	6

General experience

General experience is clerical, administrative or technical experience which has demonstrated general knowledge of purchasing procedures, practices, or regulations; or experience which has demonstrated ability to meet and deal with others.

Specialized experience

For positions at grade GS–5 and above, specialized experience is experience which provided familiarity with regular business and trade practices in buying and selling, such as selling terms and conditions, discounts, delivery schedules, and packing and packaging practices.

For positions at grade GS–6 and above, such experience should have provided a knowledge of commercial sources of supply, e.g., retailers, dealers, distributors, wholesalers, and manufacturers; and knowledge of comparative prices for a variety of goods and services. In addition, this experience must have provided knowledge of formal methods of procurement, such as formally advertised and negotiated contracts for goods and services. The candidate should be familiar with procedures incident to the award and signing of contracts (e.g., the development of invitations for bids and requests for proposals and quotations, analysis of proposals from the standpoint of price equity, recommendation for award).

Quality of experience

For positions at any grade, the required amount of experience will not in itself be accepted as proof of qualification. The candidate's record of experience and training must show that he has the ability to perform the duties of the position. In addition, for GS–4 positions at least six months of the required experience must have been at a level of difficulty comparable to grade GS–3 in the Federal service. For GS–5 positions, the one year of required specialized experience must have been comparable to grade GS–4. At GS–6 through GS–1., at least one year of the required specialized experience must have been comparable to the next lower grade, or two years of the required specialized experience must have been comparable to the second lower grade. For GS–12, at least one year of specialized experience must have been comparable to the next lower grade.

Supervisory and administrative experience

For supervisory positions, use the qualification standard for Supervisory Positions in General Schedule Occupations in part III of this handbook in conjunction with this standard.

Substitution of education for experience

Study successfully completed in a residence school or institution may be substituted for experience as follows:

For grade GS–4:

Study completed in an educational or training institution above the high school level may be substituted on the basis of one year of study for one year of general experience.

Completion of two years of study satisfies the experience requirements for the GS–4 level.

For grade GS–5:

Completion of a 4-year course of study in a residence school above the high school level may be substituted for the two years of general experience and one year of specialized experience required for the GS–5 level.

PERSONAL CHARACTERISTICS

Purchasing agent positions involve substantial contact with others outside the immediate employing office. Such duties require tact, courtesy, and capacity for effective exchange of information. In filling these positions, either competitively or from within the service, appointing offices should assure themselves by reference checks, personal interviews, or other appropriate means that applicants possess these qualities to the degree necessary for satisfactory performance of the duties of such positions.

WRITTEN TEST

A written test of abilities necessary to learn and perform the duties of these positions is required for positions at grade GS–4. The test should be waived for inservice placement actions, but not for appointments outside the register. (See *FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement.*)

BASIS OF RATING

Competitors are rated on a scale of 100. Rankings are made:

1. *For competitive appointments at grade GS–4:* On the basis of the written test.
2. *For competitive appointments above GS–4, or for inservice placement at all grades:* On the basis of the extent and quality of experience and training relevant to the duties of the position.

Information used in rating will be secured from application forms, reference checks, and other sources.

GUIDE FOR EVALUATING SPECIALIZED EXPERIENCE

The specialized experience needed to perform work in this occupation can be gained from a variety of experience and education backgrounds. Certain positions may require specialized knowledges, however. In those cases, it is especially important to relate experience to the specific demands of the position.

Purchasing agent positions require tact, alertness, integrity, and the ability to learn purchasing procedures, regulations, and rules. Past performance should indicate the degree to which the candidate possesses those knowledges, skills, abilities, and personal traits.

Purchasing agents are required to consider many factors when placing an order. Price, delivery date, discounts, and past performance of the suppliers are primary among these factors. Ability to determine what is the best purchase for the Government is important.

Person-to-person contacts are a significant part of the work of the purchasing agent. Ability to communicate effectively is a requirement.

In rating candidates, actual wholesale or institutional buying experience should be given more weight than other types of qualifying experience, such as clerical work involving the processing of purchasing documents.

PHYSICAL REQUIREMENTS

See Part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

GUIDES FOR EVALUATING CANDIDATES FOR INSERVICE PLACEMENT

Candidates for inservice placement should be evaluated on the basis of their total qualifications as related to the position to be filled. Guides for evaluating candidates are provided below.

Suggestions concerning what to evaluate:

NOTE: Paragraphs (1) through (3) below apply to candidates for positions at grades GS–5 and above. Evaluation of inservice candidates for lower-grade positions should be made by determining the extent to which previous experience and training showed the candidate's potential to perform the work indicated in paragraphs (1) through (3). Paragraphs (4) through (6) apply to all grade levels.

(TS 145)
April 1973
Reprinted without change June 1974 (TS 151)

(1) *The nature, scope and complexity of the work which the candidate has performed:* whether the candidate's work included wholesale or institutional buying experience; whether his experience involved open-market purchasing and competitive bid procedures; whether his work was performed in direct support of operational requirements; the extent to which his experience involved purchase of a variety of goods and services; whether his experience included local buying or involved seeking sources of supply outside of local areas.

(2) *Knowledge of business practices and commercial supply sources:* the degree to which the candidate's experience has provided familiarity with regular business and trade practices in buying and selling; the degree to which his work has required knowledge and selling terms and conditions, discounts, delivery schedules, and packing and packaging practices; whether his experience provided good knowledge of commercial sources of supplies and services, retailers, dealers, distributors, wholesalers, and manufacturers.

(3) *Knowledge of methods of procurement:* the degree to which the candidate's work has involved application of knowledge of open-market purchasing and formal competitive bid procedures; whether his work involved use of negotiated contract procedures; whether his experience provided familarity with procedures for the awarding and signing of contracts.

(4) *Resourcefulness, initiative:* the degree to which the candidate has demonstrated resourcefulness, initiative, and ingenuity in searching for alternative methods of accomplishing his work, e.g., substitute supplies or services or new sources of supply.

(5) *Decision-making ability:* the degree to which the candidate has demonstrated the ability to make decisions; the degree to which he has demonstrated the ability to consider various factors when making evaluations or conclusions.

(6) *Ability to meet and deal effectively with others:* the degree to which the candidate has been required to meet and deal with others; whether he has demonstrated ability to negotiate with others to secure the best possible response; the degree to which he has demonstrated the ability to clearly explain requirements and procedures to others.

PROCUREMENT CLERICAL AND ASSISTANCE SERIES

For Supervisory* and Nonsupervisory Positions in the Procurement Clerical and Assistant Occupation, GS–1106, Grades GS–3/11

Procurement Clerk
Procurement Assistant
Supervisory Procurement Clerk
Supervisory Procurement Assistant

DESCRIPTION OF DUTIES

Procurement clerks and procurement assistants perform a wide range of clerical and technical support work related to procurement and contract functions. The clerical work involves preparing and processing procurement documents and requires a knowledge of procurement regulations and procedures. The technical support work includes tasks such as assembling product and price data for procurement negotiations, reporting on performance of contractors in meeting the terms of contracts, and similar duties that require both a good knowledge of procedures and regulations and a general knowledge of the basic procurement policies.

(Additional information on duties and responsibilities may be obtained from the position-classification standard for this occupation.)

EXPERIENCE REQUIREMENTS

Applicants must have experience as described below (or the appropriate substitution):

Grade	*General experience (years)*	*Specialized experience (years)*	*Total experience (years)*
GS–3	1	0	1
GS–4	1½	½	2
GS–5	2	1	3
GS–6	2	2	4
GS–7	2	3	5
GS–8 and above	2	4	6

*For Supervisory positions, the qualification standard for Supervisory Positions in General Schedule Occupations, in part III of this handbook, should be used in conjunction with this standard.

(1) *General experience*

General experience is any kind of clerical or office work that demonstrates accuracy and attention to detail. Examples of general experience include but are not limited to (*a*) maintaining records; (*b*) screening, reviewing or verifying documents; (*c*) searching for and compiling information; (*d*) preparing or verifying the validity of documents; (*e*) typing, or operating similar office machines when this included responsibility for accuracy.

(2) *Specialized experience*

Specialized experience is work that has provided the applicant with a knowledge of the rules, regulations, procedures, and program requirements of one or more areas of a procurement system, and that has demonstrated the applicant's ability to perform at the level of the position to be filled. Specialized experience may have been gained in functions or activities related to procurement, such as supply, finance, data processing, production control, transportation, etc., if the applicant was required to know, apply, or use procurement regulations, procedures, forms, and terminology on a regular basis.

Acceptable specialized experience may be gained in activities closely related to the work in procurement in terms of knowledges of clerical processes provided in each case. For example, a file clerk in a procurement organization may acquire sufficient knowledge of procurement regulations, procedures, forms, terminology, etc., to be considered qualified for a procurement clerical position.

(3) *Quality of experience*

For positions at any grade, the required amount of experience will not in itself be accepted as proof of qualification. The applicant's record of experience and training must show that he has the ability to perform the duties of the position.

In addition, applicants for positions at the GS–4 level and above must show either (*a*) one year of experience at a level of difficulty comparable to the next lower grade in the Federal

service, or (*b*) two years of experience comparable to the second lower grade in the Federal service. At grades GS–5 and above this experience must have been specialized experience.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

For the first two years of required experience

Successfully completed resident education in a school above the high school level may be substituted for experience on the basis of one half an academic year of study (i.e., 18 weeks of substantially full-time study, or 15 semester hours, or the equivalent) for six months of experience. If education is substituted for the required six months of specialized experience the total education must include a minimum of six semester hours in business subjects such as data processing, accounting, economics, marketing, business law, finance, purchasing or other courses directly related to the field of procurement. Thus, two academic years of study, that included six semester hours in such subjects, fully meets the experience requirements for grade GS–4. No credit will be allowed for training which has been obtained only or primarily in the basic skills of shorthand or typing, or refresher courses.

Education may not be substituted for the required specialized experience above the GS–4 level.

PERSONAL CHARACTERISTICS

Some positions in this occupation may involve substantial contact with persons outside the immediate employing office. These duties require tact, courtesy, and capacity for effective public contacts. In filling such positions competitively and within the service, appointing officers should assure themselves by reference checks, personal interviews, or other appropriate means that applicants possess these qualities.

BASIS OF RATING

No written test is required. Candidates will be rated on the basis of education, training, experience, and personal qualifications. Ratings will be based on information furnished in application forms and any additional information that may be obtained from reference inquiries to teachers, supervisors, associates, and other sources.

SELECTIVE PLACEMENT

Because of the wide range of procurement activities, some positions may require specialized experience or training in specific functions, or commodities, or in automated systems. When required, selective placement may be used.

INSERVICE PLACEMENT

Use of written tests

For inservice placement actions, a written test is *not* required and, therefore, may *not* be used on a pass-fail basis. In addition, a test may *not* be used in evaluating or ranking eligible employees unless the test is approved for this purpose by the Civil Service Commission (see section A–3, appendix A, *FPM Supplement 335–1*).

Guide for evaluating candidates

The knowledges, skills, and abilities required to perform procurement clerical and support work vary with the position to be filled. The combinations of tasks performed are so varied among agencies that it is not practicable to provide here a detailed listing of all of the knowledge, skills, and abilities required for each position. The information below discusses those factors that are common to a number of positions in this occupation. This information should be used only in conjunction with a careful analysis of the position to be filled to identify and determine the relative value or weight of the specific knowledges, skills, and abilities needed for performance of the work.

Procurement clerical knowledges and abilities may be acquired in the performance of other kinds of work (e.g., a voucher examiner may acquire a detailed knowledge of procurement documents and the meaning of contract terms). It is necessary to look beyond the title of the position or of the organizational unit in

which the work is performed. Each candidate's experience should be carefully analyzed to determine:

—The nature and extent of knowledge acquired of procurement documents, terminology and processing procedures, or of Government procurement policies, regulations and practices;
—The degree of independence in applying these knowledges, or the extent to which the person had to be supervised; and
—The extent to which the work performed demonstrates other knowledges, skills, and abilities important in the position to be filled (e.g., what kinds of personal contacts did the candidate make, what kinds of reports did he compile, etc.).

For beginning level procurement clerical positions significant requirements may include:

—Ability to follow detailed oral or written instructions;
—Accuracy and attention to details;
—Ability and interest in working with figures;
—Ability to memorize and apply a variety of codes and abbreviations; and
—Ability to learn and apply procurement regulations and procedures.

At the higher grade levels, procurement clerks and assistants need to know and be able to apply, in increasing measure, such knowledges, skills, and abilities as:

—Knowledge of procurement terminology, documents and processing procedures;
—Knowledge of procurement regulations and of Government procurement policies and practices;
—Ability to understand contract and procurement transactions and the effect of specific contract clauses or terms;
—Ability to recognize and extract information pertaining to contract terms from technical reports or similar data;
—Skill in compiling and summarizing both verbal and quantitative data from varied sources;
—Skill in personal contacts for developing information or for explaining or obtaining agreement on specific terms or conditions;
—Knowledge of automated data processing terminology, procedures, and coding structures, or similar knowledges, skills, and abilities that are important in the position to be filled.

Information concerning the necessary knowledges, skills, and abilities may be gathered from a variety of sources including, but not limited to:

(1) Written performance appraisals and supervisory evaluations;
(2) Personal interviews with present and former supervisors;
(3) Review of official personnel folders, personal qualification statements, applications, and other available written information;
(4) Reference inquiries.

FPM Chapter 335–1, Evaluation of Employees for Promotion and Internal Placement, suggests procedures, including job element ratings, that may be appropriate for evaluating candidates for these positions. In all cases, the candidate's experience must be evaluated according to the requirements of the position being filled. A particular knowledge, skill, ability, or personal characteristic may be more important for performing the duties of one position than another and should be weighted accordingly.

PHYSICAL REQUIREMENTS

See Part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

PROPERTY DISPOSAL CLERICAL AND TECHNICIAN SERIES

GS–1107

The qualification standard for Clerk, GS–300–1/3, is to be used for Property Disposal Clerk positions in grades GS–1107–1/3.

For Property Disposal Clerk and Technician positions in grades GS–1107–4 and above, use the qualification standard for Clerk, GS–300–4/6, or for Supply Clerk and Technician, GS–2005–4/7, as applicable to the position to be filled.

PUBLIC UTILITIES SPECIALIST SERIES

Public Utilities Assistant GS-5/7

Public Utilities Specialist GS-9/15

- **Specializations:**

Telecommunication

Electricity

Gas

Water

General

DESCRIPTION OF WORK

Public Utilities Specialists perform a wide variety of work requiring knowledge of the business practices and operations of a utility or utilities. Depending upon the program or activity in which positions are located, Public Utilities Specialists perform such specific functions as the following: (1) programing, conducting or participating in surveys and studies of the marketing and sales program of a utility; (2) determining the reasonableness to the general public or Government of a proposed utility rate schedule; (3) determining whether rate schedules submitted by utility companies are in compliance with Federal or State regulations; (4) developing policies, regulations and procedures governing the acquisition, utilization or sale of public utility services by the Federal Government; (5) developing terms and conditions or rates for the sale of utility services, and negotiating and administering sales and repayment contracts; (6) selecting or recommending the most suitable utility or utilities combination for purchase by the Federal Government or federally-assisted activities, in some cases negotiating and administering contracts for such; (7) determining the need for and adequacy of service; and (8) investigating and analyzing the business management, organization, and financial structure of public utilities in connection with licensing or regulatory actions, including preparation and presentation of testimony before regulatory bodies. Typically, positions in this series assist in administering and enforcing such statutes as the Communication Act of 1934, the Public Utility Holding Company Act of 1935, the Federal Power Act, the Flood Control Acts, the Natural Gas Act, various Federal Reclamation laws, the Water Supply Act of 1958, and the Communications Satellite Act of 1962. Also involved may be State and municipal statutes, ordinances or regulations.

Public Utilities Assistants receive training enabling them to perform work of the kind described above.

The utilities covered by this series include telecommunication, electric and gas power, water, steam, sewage disposal, and related community services.

Public Utilities Specialists (General) have duties and responsibilities which involve working with more than one utility on a regular basis or do not fit into the major listed specializations.

EXPERIENCE REQUIREMENTS

Except for the substitution of education for experience provided for in this standard, applicants must have had, as a minimum, the length of experience specified in the following table:

Grade	General experience (years)	Specialized experience (years)	Total (years)
GS-5	3	0	3
GS-7	3	1	4
GS-9	3	2	5
GS-11/15	3	3	6

General experience is responsible experience which has provided basic understanding of one or more of the following: (1) compilation and analysis of technical, rate, marketing, economic, financial, accounting, or statistical data as it relates to financial rates and costs, rate structures and bases, services, rates of return, loads and load forecasts, division of tolls, earnings and/or revenue forecasts which also includes utility statistical analyses; (2) analysis of types of customers for public utility rate classification; (3) application of rate schedules within rate classification for billing of utility services

to customers; (4) factors affecting charges for utility services; (5) principles and problems of marketing and sales peculiar to utilities; (6) technical work involving the design, construction, or operation of utility equipment and distribution facilities, and (7) market analysis involving service evaluation and user requirements.

Specialized experience may have been acquired by work involving such activities as the following: (1) analysis, review and development of rate schedules, applying knowledge of rate schedules to customer classifications, rate design and analysis of comparative costs of utilities, including a knowledge of abbreviations and units of measure used in their application; (2) studies to improve the distribution or use of a utility, e.g., of such subjects as the forecasting of future requirements, negotiation and preparation of contracts for purchase, repayment, or sale and distribution of services; (3) engineering which has given knowledge of the business practices or management operations of a utility; (4) reviewing matters pending before utility regulatory bodies, recommending types of action to be taken, and/or appearing as an expert witness at regulatory proceeding; (5) preparation, interpretation, or administration of utility contracts; (6) utility management; and (7) development of markets for utility services.

Some positions are predominantly concerned with but one of the functional areas or with but one type of utility and also require concentrated knowledges of that functional area or that type of utility. Only applicants who have had specialized experience in the appropriate functional area or type of utility will be considered for such positions.

PERSONAL QUALITIES REQUIRED

Applicants for positions which require the incumbent to meet, deal and negotiate successfully with representatives of utility companies and the public must demonstrate the ability to (1) communicate ideas and conduct himself in a calm, coherent and persuasive manner when under pressure and when giving testimony before public bodies; and (2) use practical and desirable approaches in negotiating or dealing with others (representatives of industry or Government) whose interests may be in conflict with the objectives of the organization he represents.

QUALITY OF EXPERIENCE

The applicant's experience must be of such scope and level of responsibility as to demonstrate that he has the ability to perform the duties of the position for which he is being considered. For positions through GS–11 at least 6 months of the required specialized experience must have been at the next lower grade, or 1 year at a level comparable to the second lower grade in the Federal service. For positions above GS–11 at least 1 year of the required specialized experience must have been at the next lower grade.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. Education successfully completed in a residence school above high school level which included an average of 6 semester hours (or its equivalent) a year in one or a combination of economics, business administration, business or commercial law, accounting, finance, political science, public administration, engineering, or public utilities may be substituted for experience at the rate of 1 academic year of study for 9 months of experience up to a maximum of 4 years of study for 3 years of general experience. Applicants for positions involving irrigation programs may substitute comparable education in agriculture or soil science in the same man-

ner and at the same rate as above. (Four years of such study, or completion of all requirements for a bachelor's degree, qualifies for grade GS–5.)

2. Full-time* graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For 1 year of specialized experience.*—One full academic year of graduate education in one of the following: economics, business administration, accounting, finance, political science, public administration, engineering, public utilities, or other directly related fields. (This amount and kind of education meets all the requirements for grade GS–7.)

b. *For 2 years of specialized experience.*—Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education, which is in one of the fields described in paragraph "a" above. (This amount and kind of education meets all the requirements for grade GS–9.)

*Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.

3. The Superior Academic Achievement Standard in section III of part II, Instructions to Users, of this handbook, is applicable at grade GS–7.

4. Completion of a total of at least 6 years of pre-legal and legal education which meets all the requirements for an LL.B. or J.D. degree will provide eligibility in full at grade GS–9.

WRITTEN TESTS

A written test is required for GS–5/7. It should be waived for in-service placement actions but not for appointments outside the register. No written tests are required at the GS–9 level and above.

BASIS OF RATING

Applicants for GS–5/7 positions will be rated on the basis of their test scores and an evaluation of their education and experience.

Applicants for positions above GS–7 will be rated on a scale of 100, based upon an evaluation of the applicant's total experience, education, training, and personal traits judged appropriate for the position to be filled.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

TRADE SPECIALIST SERIES

Trade Assistant GS–5/7

Trade Specialist GS–9/15

International Trade Specialist GS–9/15

DESCRIPTION OF WORK

Employees in these positions perform functions such as market analysis, furnishing of advice and information to the business community concerning trade opportunities, export-import and tax and tariff regulations and requirements, and development of programs for trade promotion and expansion.

EXPERIENCE AND EDUCATION REQUIREMENTS

For grade GS–5

As a minimum requirement for entrance into this occupation, applicants must have education or experience as described under A, B, or C below.

A. Completion of college course leading to a bachelor's degree, with a major in one of the following fields: marketing, business administration, political science, public administration, history, business or commercial law, economics, finance, international trade or international relations.

B. Three years of responsible experience in work that has developed or required an understanding of the principles of merchandising, market research, sales promotion and advertising and similar aspects of the distribution of goods and services.

C. Any time equivalent combination of education and experience as described in A and B. In combining education and experience, as provided above, 1 year of education is equivalent to 9 months of experience.

For grades GS–7 and above

In addition to meeting the experience or education requirements for GS–5, applicants for higher grades must have the amount and kind of advanced experience indicated below:

Grade:	*Years of advanced experience*
GS–7	1
GS–9	2
GS–11/15	3

Advanced experience consists of performance of progressively responsible work requiring application of specialized, intensive knowledges of the following:

a. Marketing, which includes economics plus psychological and sociological influences bearing upon consumption pattern;
b. Business practices pertaining to wholesale, retail, manufacturers' distribution, distribution costs, finance and tax structure and similar areas of activity or concern; and
c. For International Trade Specialist positions only, international economic and political factors influencing balance of payments, monetary exchange and tariffs, and their bearing on the distribution of commodities.

Advanced experience may have been gained in such fields as:

a. Department store management;
b. Promotional work with trade associations or Chambers of Commerce;
c. Export-import management, sales promotion and advertising;
d. Investment analysis;
e. International relations work in the commercial field;
f. Area economics development planning;
g. Foreign trade documentation and forwarding activities;
h. Work with international insurance companies;
i. Experience in teaching college level courses in the fields listed in the preceding paragraph.

SUBSTITUTION OF EDUCATION FOR ADVANCED EXPERIENCE

1. Full-time* graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For 1 year of specialized experience.*—One full academic year of graduate education in one of the following fields: marketing, business administration, political science, public administration, history, economics, finance, international trade, international relations, or other directly related field. (This amount and kind of education meets all the requirements for grade GS–7.)

b. *For 2 years of specialized experience.*—Completion of, all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education, which is in one of the fields described in paragraph "a" above. (This amount and kind of education meets all the requirements for grade GS–9.)

2. The Superior Academic Achievement Standard in section III of part II, Instructions to Users, of this handbook, is applicable at grade GS–7.

3. Completion of a total of at least 6 years of pre-legal and legal education which meets all the requirements for an LL.B. or J.D. degree will provide eligibility in full at grade GS–9.

LEVEL AND QUALITY OF EXPERIENCE

For grades GS–11 and below, at least 6 months of the required advanced experience must have been at a level of difficulty comparable to that of the next lower grade, or 1 year must have been at a level of difficulty comparable at least to that of the second lower grade in the Federal service. For grades GS–12 and above, at least 1 year of the required advanced experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

For all full-performance level positions, the applicant's training and experience must demonstrate that he possesses the following qualities, skills and abilities:

a. Ingenuity in devising new approaches and solutions to problems;
b. Ability to present ideas, in written and oral form, clearly and convincingly;
c. Skill in organizing and preparing promotional campaigns and material;
d. Interest in providing maximum service to "customers";
e. Bearing, manner and appearance that will enable him to deal effectively with a variety of individuals and organizations.

WRITTEN TEST

A written test is required for grades GS–5/7. It should be waived for in-service placements actions, but not for appointments outside the register.

A written test is not required for grades GS–9 and above.

BASIS OF RATING

Applicants for grades GS–5 and GS–7 will be rated on a scale of 100 based on the written test score and an evaluation of the applicants' experience, education, and training.

Applicants for grades GS–9 and above will be rated on a scale of 100 based on an evaluation of the applicants' experience, education, and training.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

*Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.

COMMISSARY STORE MANAGEMENT SERIES

COMMISSARY STORE MANAGEMENT

—Commissary Store Manager GS–5/12

—Commissary Management Specialist GS–5/12

—Department Manager (with appropriate prefix) GS–4, 5/11

—Commissary Officer GS–7/13

DESCRIPTION OF WORK

Commissary store managers are responsible for the day-to-day management of all departments in a commissary store.

Commissary management specialists are responsible for developing, analyzing and evaluating, advising on, or improving the effectiveness of methods, procedures, sales trends and projections, fiscal controls, organization and similar functions in support of commissary store operations.

Department managers are responsible for the day-to-day management of departments in a commissary store, such as meat, grocery or produce departments.

Commissary officers have final responsibility for the management and control of a commissary operation which normally includes a commissary store, a warehouse operation, and an office operation and may include a troop food issue activity.

EXPERIENCE REQUIREMENTS

Except for the substitutions provided for below, candidates must have had experience of the following kinds and amounts:

Grade	General experience	Specialized experience	Total
GS–4	2	0	2
GS–5	2	1	3
GS–7	2	2	4
GS–9	2	3	5
GS–11 and above	2	4	6

General experience is responsible work that has demonstrated an understanding of the basic principles of any of the following areas: merchandising, market research, sales promotion/advertising or the accounting, administration and/or distribution of goods and services. This experience need not have been acquired solely in the field of food merchandising. Sales, clerical, or other work in any of the above areas which demonstrates the ability to perform satisfactorily at the grade level of the position to be filled is acceptable for general experience.

Specialized experience is experience which provides knowledge of retail procurement and distribution methods; principles, procedures, and techniques of retail food merchandising and retail food store management; and developments in commercial retail food store items, equipment, and practices. The specialized experience must demonstrate that the candidate has most of the following abilities:

—Ability to forecast and schedule delivery to meet fluctuating requirements.

—Ability to provide for the proper storing, handling, and display of food items.

—Ability to price items on the basis of operating costs and profit and loss restrictions or in accordance with established pricing procedures.

—Ability to assign employees to a variety of kinds of work having short-term volume variations.

—Ability to plan space layout and customer traffic patterns.

—Ability to resolve operating problems through the use of different kinds of equipment, store procedures, space arrangements and/or similar techniques.

—Ability to maintain adequate cash accounting, stock control, and related records.

—Ability to promote good customer relations.

Specialized experience may be gained in positions which involve such duties as:

1. Managing, or assisting full time in the management of, a commissary store, supermarket, or similar type of commercial retail food store;
2. Planning, standardizing, or controlling operations in an assigned group of retail food stores;
3. Developing, interpreting, or applying policies, procedures, and operating standards for use in commissary or other retail food stores; or

4. Providing advisory service and assistance on retail food store equipment, procedures, and operations.

Supervisory positions

For supervisory positions, use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

QUALITY OF EXPERIENCE

For GS–4 positions, at least six months of the required experience must have been at a level of difficulty comparable to grade GS–3 in the Federal service. For GS–5 positions, at least one year of the required specialized experience must have been comparable to the next lower grade in the Federal service. At GS–6 through GS–11, at least 6 months of the required specialized experience must have been comparable to the next lower grade, or one year of the required specialized experience must have been comparable to the second lower grade. For positions at GS–12 and above, at least one year of specialized experience must be comparable to the next lower grade.

SPECIALIZED CERTIFICATION FOR CERTAIN POSITIONS

Some positions require intensive knowledge of one or more particular commodity areas. For these positions selection may be restricted to candidates whose experience or training involved the same commodity area or areas as that of the position to be filled.

SUBSTITUTION OF EDUCATION AND TRAINING FOR EXPERIENCE

The education described below must have equipped candidates with the knowledge and ability to perform fully the work of the positions for which they are being considered. The following will apply:

For Positions at GS–4:

All of the experience requirements for the GS–5 GS–4 level may be met by the completion of two years of study in an educational or training institution above the high school level.

For Positions at GS–5:

All of the experience requirements for the GS–5 level may be met by completion of a bachelor's degree in business administration or in a directly related field.

SPECIAL PROVISION FOR THE SUBSTITUTION OF EDUCATION AT THE GS–5 LEVEL

Provided the applicant has met the general experience requirement stated above; successful completion of accredited academic courses above the high school level which included at least 30 semester hours in business administration provided the study included such courses as marketing, retail merchandising, accounting, financial management, personnel management, statistics, computer systems, and economics is fully qualifying for GS–5.

For Positions at GS–7:

All the experience requirements for the GS–7 level may be met by completion of one full academic year of graduate education in business administration, public administration, agricultural-economics (food industry management), or a directly related field.

For Positions at GS–9:

All of the experience requirements for the GS–9 level may be met by completion of a master's degree or two full academic years of graduate education in business administration, public administration, agricultural-economics (food industry management), or a directly related field.

Superior Academic Achievement Standard

The Superior Academic Achievement Standard in section III of Part II, Instructions to Users, of this handbook is applicable at grade GS–7.

BASIS OF RATING

Candidates will be evaluated based on their education and/or experience. No written test is required.

For inservice placement actions at any grade, the basis of rating is established by the agency in accordance with FPM Supplement 335–1.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may be included, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules. Also, all positions involving Federal motor vehicle operation continue to carry the additional medical requirements specified in the Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Agricultural Commodity Market Reporter (Dairy and Poultry Market Reporting), GS–7, 9, 11, 12

Applicants must have had responsible and successful experience in appropriate marketing specialties and activities as follows:

Grade	*Total (years)*
GS–7	4
GS–9	5
GS–11, 12	6

The experience must have demonstrated:

For GS–7, ability to perform effectively work in one or more appropriate phases of marketing relating to inspecting, grading, reporting, sampling, surveys, investigating, compliance work on regulatory statutes, disseminating information, developing programs and procedures, or other related work.

For GS–9, ability to perform independently and effectively the work described above, and to supervise assistants in the performance of such marketing work.

For GS–11, ability to conduct and supervise marketing programs and procedures in one or more related commodities or marketing activities, involving the production, processing, distribution, regulation, inspection, storage, or movement of such commodities; and to collect, interpret, compile, and disseminate data.

For GS–12, executive and administrative ability to assist in planning, organizing, and directing marketing procedures and programs; to serve as specialist in a particular field and consult with representatives of agriculture, commerce, and industry; to analyze and interpret results of surveys and investigations; and to prepare informational reports for general or special dissemination.

For GS–7, 9, 11, and 12, one year of the experience must have been comparable in difficulty and responsibility to that of GS–5, 7, 9, and 11 respectively in this series.

Qualifying experience: Collecting, analyzing, and preparing for publication current market prices of dairy or poultry products; compiling, editing, and reporting market information relating to dairy or poultry products for radio, press, and news services; experience which furnished first-hand knowledge of marketing practices and conditions and experience in compiling market information relating to dairy or poultry products; college teaching, extension, or investigational work relating to the marketing of dairy or poultry products; preparing articles or bulletins for a State or Federal agency which involved an intimate knowledge of dairy or poultry products marketing.

Nonqualifying experience: Routine writing or reporting, or nontechnical, clerical, or routine experience which is not directly related to the above activities, or which does not demonstrate the required knowledge and ability essential for these positions.

Substitution: Undergraduate study successfully completed in an accredited college or university →with specialization in agricultural economics, dairy husbandry, dairy manufacturing, dairy marketing, poultry husbandry, poultry marketing, or closely related courses may be substituted for experience at the rate of one academic year for nine months of required experience up to a total of three years of experience.

Graduate study in the marketing of dairy or poultry products, or closely related fields completed in an accredited college or university may be substituted for experience in addition to the amount for which undergraduate study may be substituted, as follows:

1. One year of full-time graduate study for one year of experience.

2. Two years of full-time graduate study, or completion of all requirements for a master's or equivalent degree for two years of experience.

3. Three years of full-time graduate study, or completion of all requirements for a doctoral degree (Ph. D. or equivalent) for three years of experience.←

See part 2, Physical Requirements, paragraph 3. In addition, some positions will require the ability of applicants to distinguish basic or shades of colors. In other positions, this is not required. Applicants must possess emotional and mental stability.

Agricultural Commodity Market Reporter (Fresh Fruits and Vegetables Market Reporting), GS–7, 9

Applicants must have had responsible and successful experience in appropriate marketing specialties and activities as follows:

Grade	*Total (years)*
GS–7	4
GS–9	5

The experience must have demonstrated:

For GS–7, ability to perform effectively work in one or more appropriate phases of marketing relating to inspecting, grading, reporting, sampling, surveys, investigating, compliance work on regulatory statutes, disseminating information, developing programs and procedures, or other related work.

For GS–9, ability to perform independently and effectively the work described above, and to supervise assistants in the performance of such marketing work.

For GS–7 and GS–9, one year of the experience must have been comparable in responsibility and difficulty to that of GS–5 and GS–7 respectively in this series.

Qualifying experience: Collecting and preparing market quotations on fresh fruits or vegetables for publication, radio, or news service; marketing or commercial production experience which furnished a comprehensive knowledge of marketing practices and conditions as applied to fresh fruits or vegetables; college teaching, extension, or research work in the field of production or marketing of fresh fruits or vegetables; inspection of fresh fruits or vegetables for official or trade-recognized certification which furnished considerable knowledge of marketing practices of fresh fruits or vegetables.

Nonqualifying experience: Routine writing or reporting experience; nontechnical experience restricted to the retail trade in fresh fruits or vegetables; or routine experience such as salesman or office worker in the wholesale marketing of fresh fruits or vegetables which does not demonstrate the required experience for these positions.

Substitution: Undergraduate study successfully completed in an accredited college or university with specialization in agricultural economics, agricultural marketing, horticulture, olericulture, pomology, or closely related courses may be substituted for experience at the rate of one full year of study for nine months of the required experience, up to a total of three years of experience.

Graduate study in →the marketing of fruits or vegetables or closely related fields completed at an accredited college or university may be substituted for experience in addition to the amount for which undergraduate study may be substituted, as follows:

1. One year of full-time graduate study for one year of experience.

2. Two years of full-time graduate study, or completion of all requirements for a master's or equivalent degree for two years of experience.

3. Three years of full-time graduate study, or completion of all requirements for a doctoral degree (Ph. D. or equivalent) for three years of experience.←

See part 2, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability. Some positions will require the ability of applicants to distinguish basic or shades of colors. In other positions, this is not required.

Agricultural Commodity Market Reporter (Grain and Feed Market Reporting), GS–9, 11

Applicants must have had successful and responsible experience in appropriate marketing specialities and activities, as follows:

Grade	*Total (years)*
GS–9	5
GS–11	6

The experience must have demonstrated:

For GS–9, ability to perform independently and effectively work in one or more appropriate phases of marketing relating to inspecting, grading, reporting, sampling, surveys, investigating, compliance work on regulatory statutes, disseminating information, developing programs and procedures, or other related work; and to supervise assistants in the performance of such marketing work.

For GS–11, ability to conduct and supervise marketing programs and procedures in one or more related commodities or marketing activities, involving the production, processing, distribution, regulation, inspection, storage, or movement of such commodities; and to collect, interpret, compile, and disseminate data.

For GS–9 and 11, one year of the experience must have been comparable in difficulty and responsibility to the work of GS–7 and 9 respectively in this series.

Qualifying experience: Collecting, analyzing, interpreting, and preparing for publication, market information and prices of grain or feed at marketing centers; experience which furnishes first-hand knowledge of marketing practices and preparation of market reports concerning grain or feed.

Nonqualifying experience: Routine writing or reporting which does not demonstrate or require knowledge of marketing practices or of collecting and analyzing market information.

Substitution: Undergraduate study successfully completed in an accredited college or university in agricultural economics and marketing may be substituted for experience at the rate of one full year of study for nine months of the required experience, up to a total of three years of experience. (No graduate study substitution.)

See part 2, Physical Requirements, paragraph 3. In addition, some positions will require the ability of applicants to distinguish basic or shades of colors. In other positions, this is not required. Applicants must possess emotional and mental stability.

Agricultural Commodity Market Reporter (Livestock Market Reporting), GS–7, 9

Applicants must have had successful and responsible experience in appropriate marketing activities and specialties, as follows:

Grade	*Total (years)*
GS–7	4
GS–9	5

The experience must have demonstrated:

For GS–7, ability to perform effectively work in one or more appropriate phases of marketing relating to inspecting, grading, reporting, sampling, surveys, investigating, compliance work on regulatory statutes, disseminating information, developing programs and procedures, or other related work.

For GS–9, ability to perform independently and effectively the work described above, and to supervise assistants in the performance of such marketing work.

For GS–7 and 9, one year of the experience must have been equivalent in difficulty and responsibility to that of GS–5 and 7 respectively in this series.

Qualifying experience: Experience as a Federal livestock market reporter or as a State livestock market reporter working under close supervision of a Federal livestock market news officer in charge of a branch office at a terminal market or in a nationally important marketing area; experience reporting livestock markets for livestock market papers, trade magazines, or similar publications involving actual observation of transactions in the trade and requiring direct knowledge of market classes, grades, prices, and related factors involved in the collection and dissemination of trade information on livestock; teaching in an accredited college or university or extension experience in the field of livestock marketing, provided both of these types of experience show that the applicant prepared written material dealing with livestock or livestock marketing. (Teaching experience will be accepted at the GS–7 grade only.)

Nonqualifying experience: Nontechnical, clerical, or routine experience such as yardman, bookkeeper, or clerk for livestock market agencies.

Substitution: Undergraduate study successfully completed in an accredited college or university in animal husbandry or livestock marketing may be substituted for experience at the rate of one full year of study for nine months of the required experience, up to a total of three years of experience (no graduate study substitution).

See part 2, Physical Requirements, paragraph 3. In addition, some positions will require the ability of applicants to distinguish basic or shades of colors. In other positions, this is not required. Applicants must possess emotional and mental stability.

Fishery Marketing Specialist, GS–7, 9, 11, 12, 13, 14

Applicants must have had successful and responsible experience in appropriate marketing activities and specialties as follows:

Grade	*Total (years)*
GS–7	4
GS–9	5
GS–11, 12, 13, 14	6

The experience must have demonstrated:

For GS–7, ability to perform effectively work in one or more appropriate phases of marketing relating to inspecting, grading, reporting, sampling, surveys, investigating, compliance work on regulatory statutes, disseminating information, developing programs and procedures, or other related work.

For GS–9, ability to perform independently and effectively the work described above, and to supervise assistants in the performance of such marketing work.

For GS–11, ability to conduct and supervise marketing programs and procedures in one or more related commodities or marketing activities, involving the production, processing, distribution, regulation, inspection, storage, or movement of such commodities; and to collect, interpret, compile, and disseminate data.

For GS–12, executive and administrative ability to assist in planning, organizing, and directing marketing procedures and programs; to serve as specialist in a particular field and consult with representatives of agriculture, commerce, and industry; to analyze and interpret results of surveys and investigations; and to prepare informational reports for general or special dissemination.

For GS–13, executive, administrative, and technical ability to plan, organize, conduct, supervise, interpret, and report difficult marketing problems; to participate in planning broad programs and analyzing conditions and problems; to advise and consult with marketing experts and leaders; and to analyze and review reports, publications, and programs prepared by assistants for soundness and accuracy.

For GS–14, executive, administrative, and technical ability to act with full and complete responsibility in initiating, planning, organizing, conducting, supervising, interpreting, and reporting broad and difficult marketing problems and regulations on a nation-wide basis; in planning major programs and analyzing results; in advising and consulting national leaders in the field of marketing; in analyzing and reviewing activities, inspections, regulations, and reports of assistants; in leading and directing personnel in the establishment and execution of successful marketing programs; and in maintaining successful cooperative relations with other agricultural groups, commercial concerns, private enterprises, and the general public.

For GS–12, 13, and 14, one year of the required experience must have been comparable in responsibility and difficulty to that of the next lower grade in this series; for GS–7, 9, and 11, one year must have been at a level of difficulty and responsibility comparable to that of GS–5, 7, and 9 respectively.

Qualifying experience: Conducting fishery marketing research; collecting, compiling, analyzing, and preparing fishery production and marketing information for publication; administrative or supervisory work in the field of fishery marketing requiring a thorough knowledge of merchandising and distribution practices; promoting increased use and orderly marketing of fishery commodities; manufacturing or processing fishery products requiring an intimate knowledge of all phases of processing and production in a particular field.

Nonqualifying experience: Experience such as wholesale or retail selling (salesman) of fishery products; fish filleting or dressing; fishery shore plant laborer; clerk in fishery processing plant, wholesale establishment, or retail office.

Substitution: Undergraduate study satisfac-

torily completed in an accredited college or university with specialization in the subject of fisheries may be substituted for experience at the rate of one full year of study for nine months of the required experience up to a total of three years of experience. Undergraduate study satisfactorily completed in an accredited college or university, with specialization in the subjects of general economics or marketing, may be substituted for experience at the rate of one full year of study for six months of the required experience, up to a total of two years of experience. (No graduate substitution.)

In no case may undergraduate education be substituted for more than a total of three years of experience.

See part 2, Physical Requirements, paragraph 3. In addition, some positions will require the ability of applicants to distinguish basic or shades of colors. In other positions, this is not required. Applicants must possess emotional and mental stability.

Industrial Specialist, GS–5/15

Note to users: Positions in this occupation require primarily a practical knowledge of the nature and operations of an industry or industries, and the materials, facilities and methods employed by the industry in producing commodities. (For more detailed information concerning the nature of these positions, see the classification standard for the Industrial Specialist Series, GS–1150.)

EXPERIENCE REQUIREMENTS

Except for the substitution of education for experience provided for below, applicants must show that they have experience of the types described below, in the amounts indicated in the following table for the grade of the position for which they are applying.

Grade	General experience required (years)	Specialized experience required (years)	Total (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11/15	3	3	6

General experience

This experience may have been gained in administrative, technical or trades work which demonstrates that the incumbent has (1) a general understanding of industrial production operations; (2) ability to express clearly, verbally or in writing, ideas and information concerning technical subjects; (3) skill in personal contacts involved in coordinating assignments with other interested persons and activities, furnishing information and assistance, and the like.

Experience that would provide a "general understanding of industrial production operations" would not be gained normally in positions of a clerical nature, nor in routine production machine operation jobs, even though such positions are located in manufacturing or industrial processing activities. In order to meet this requirement, experience should have provided an understanding of the uses of various types of facilities, machinery, tools or equipment, and processes in producing an end product.

Such experience could be gained, for example, in the following kinds of work, which differ widely in tasks involved or purposes for which performed, but provide for acquiring the "general understanding of industrial production operations" needed:

(a) Work as a general machinist, using a variety of general purpose machines and a variety of raw materials, to fabricate parts or components for different kinds of end products. The determination of machine processes and set ups to be used would normally require an understanding of the other manufacturing operations and processes involved, and the relation of the machining work to these, in the production of the end products.

(b) Compilation and reporting of information and data from a variety of narrative or statistical sources, pertaining to current operations in a mining industry. To do so requires an understanding or appreciation of the significance of the various kinds of resources, facilities, machinery, or processes being discussed.

Specialized experience

In order to be qualifying, this experience must have provided a practical knowledge of the methods, materials, machinery and facilities used in industrial production operations (which may include exploration, extraction, refining, manufacturing, or processing). This knowledge can normally be gained in the performance of such work as:

—Management or supervision of broad phases of production operations.

—Industrial engineering or plant engineering, involving determination of facilities and layout.

—Process or methods engineering, which may involve application of knowledges of general industrial engineering or of the

techniques within a specialized field of engineering, such as mining, chemical or aeronautics.

—Development of specifications or plans covering machine layout, operations, sequencing, and materials for production.

—Sales engineering or buying for a production or manufacturing concern, where a comprehensive knowledge of production operations is required.

—Planning and administering industrial quality control and inspection programs and operations.

—Comprehensive survey and analysis of industrial operations, organization, capacity, and the like.

For most positions at GS–9 and above, the specialized experience must have been gained in, or demonstrated a thorough knowledge of, one of the industry fields listed below.

When there is considerable similarity between industries as to the facilities and methods used in production, experience in one industry may be considered as qualifying for the related commodity-industry field of specialization. (For more detailed discussion of the intent and use of industry specializations, see the section of the Industrial Specialist classification standard headed "Specializations and Titling.")

Industry specializations:

Agriculture
Aircraft
Anthracite Mining
Automotive
Bituminous Coal Mining
Chemicals
Clothing
Construction
Electrical Machinery
Electronics
Fisheries
Food Products
Forestry
Furniture
Leather
Lumber Products
Machinery
Metal Mining
Metal Products
Missiles
Nonmetallic Minerals Mining
Ordnance
Paper
Petroleum and Natural Gas Production
Petroleum Products
Primary Metals
Printing and Publishing
Railroad Equipment
Rubber
Scientific Equipment
Shipbuilding
Stone, Clay and Glass Products
Textiles
Tobacco Products

QUALITY OF EXPERIENCE

At grades GS–7 through 11, at least 6 months of the required specialized experience must have been at a level of difficulty comparable to that of the next lower grade, or at least 1 year must have been comparable to the second lower grade in the Federal service. At GS–12 and above, at least 1 year of the required specialized experience must have been at a level of difficulty comparable to the next lower grade in the Federal service.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. Education successfully completed in a residence school above high school level which included an average of 6 semester hours (or its equivalent) per year in business administration, industrial management, or engineering fields may be substituted for experience at the rate of 1 academic year of study for 9 months of experience up to a maximum of 4 years of study for 3 years of *general* experience. (Four years of such study, or completion of all requirements for a bachelor's degree, meets all the requirements for grade GS–5.)

2. Full-time* graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

*Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.

a. *For 1 year of specialized experience.*—One full academic year of graduate education in industrial management or engineering, or other directly related fields. (This amount and kind of education meets all the requirements for grade GS–7.)

b. *For 2 years of specialized experience.*—Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education, which is in one of the fields described in paragraph a above. (This amount and kind of education meets all the requirements for grade GS–9.)

3. The Superior Academic Achievement Standard in section III of part II, Instructions to Users, of this handbook, is applicable at grade GS–7.

WRITTEN TESTS

A written test is required for grades GS–5 and GS–7. The requirement for a written test should be waived in in-service placement appointments but not for appointments outside of registers.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

PRODUCTION CONTROL SERIES

Production Control Aid, GS–4
Production Controller, GS–5/15

DESCRIPTION OF WORK

Production controllers perform the functions of planning, estimating, scheduling, and expediting the use of manpower, machines, and materials in the fabrication or repair of equipment and supply items by mechanical production methods. Production control aids perform detailed specialized tasks in support of these functions, and receive training in the performance of the higher level tasks.

EXPERIENCE REQUIREMENTS

Except for the allowable substitution of education for experience specified below, candidates must show that they have had the number of years of general and specialized experience shown in the following table to qualify for the grades listed:

Grade	General (years)	Specialized (years)	Total (years)
GS–4	2	0	2
GS–5	2	1	3
GS–6	2	2	4
GS–7	2	3	5
GS–8 and above	2	4	6

General experience

General experience may be gained in the following kinds of work, providing such experience indicates that the candidate can reason in quantitative terms, has facility in expressing himself orally and in writing, and has ability in mechanical subjects:

- **—Purchasing or supply in support of a manufacturing operation.[1]**
- **—Materials control and expediting in a manufacturing activity.**
- **—Statistical, materials or cost records maintenance or control, covering manufacturing operations.**
- **—Drafting or similar engineering support work in a field related to production engineering.**
- **—Apprentice, journeyman, or supervisory level work in a trade or craft in a manufacturing or industrial shop operation.**

Specialized experience

Qualifying specialized experience would be that which demonstrates that the candidate (1) understands, or has the ability to comprehend, the structure and channels of communication of the production organization; (2) can deal effectively with others, in both oral and written communications; (3) has the capacity for attentiveness to a wide range of details; and (4) can effectively analyze, relate, and apply such details of data and observation for planning and control purposes.

Such experience could be gained in performance of the following kinds of work:

- —Planning, estimating, scheduling and/or expediting production in manufacturing operations, in Government plants or in industry.
- —Analyzing a manufacturing operation to ascertain the kinds of tools and equipment and plant layout it requires.
- —Conducting methods improvement, time standards, or facility layout studies in manufacturing activities.
- —Cost accounting or statistical control work in a manufacturing activity, if such work has provided direct association with or knowledge of production operations. (The operation of electronic accounting or data processing equipment would not normally provide such qualifying knowledge.)
- —Supervision or performance of work of at least journeyman level in trades connected with manufacturing operations, if such work has provided a broad knowledge of flow of production and production methods and equipment.
- —Quality control or similar inspection work covering broad phases of production.

[1] In this standard, the term "manufacturing operations" covers fabrication and repair operations which employ mechanical production methods.

Product specializations

Some positions require a specialized knowledge of manufacturing operations related to particular types of products. In filling such positions, candidates may be selected from among those whose *specialized* experience has been gained in the appropriate product field. Product specializations established for the Industrial Specialist Series, GS–1150, and the Equipment Specialist Series, GS–1670, are appropriate for production controller positions, with the provisions and limitations outlined under *Specializations and Titling* in the classification standard for the Production Control Series, GS–1152.

Supervisory positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

QUALITY AND LEVEL OF EXPERIENCE

For eligibility *at grade GS–4*, candidates must have had at least 6 months of experience comparable in difficulty and responsibility to the GS–3 level.

For eligibility *at grade GS–5*, candidates must have had at least 1 year of experience comparable in difficulty and responsibility to the GS–4 level, of which at least 6 months must have been specialized experience.

For eligibility *at grades GS–6 through GS–11*, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service.

For eligibility *at grades GS–12* and above, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service.

With respect to positions *at GS–5 and above*, at least 1 year of the specialized experience must be directly related to the duties of the specific position to be filled. Placement in positions at GS–5 and above, either through selective certification or inservice placement, must be predicated upon (1) a careful job analysis of the knowledges, abilities, and skills required for the work, and (2) a matching of the candidate's knowledges, abilities, and skills sufficient to assure satisfactory performance.

For any grade, the required amount of experience and education will not in itself be accepted as evidence of qualification for a position. The candidate's record of experience and education must demonstrate that he possesses the ability to perform the duties of the position.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. Education successfully completed in a residence school above high-school level with a specialization in business administration, production management, industrial management, any branch of engineering, or other closely related specializations, may be substituted for experience, on the following basis:

   a. Two academic years of study may be substituted in full for the 2 years of experience required at the GS–4 level.
   b. Completion of all requirements for the bachelor's degree may be substituted in full for the 3 years of general and specialized experience required at the GS–5 level.

2. Appropriate education and training other than that described in the paragraph above, such as in manpower development programs, military training programs, industrial training programs, or formal apprenticeship programs, will be granted credit against required general experience, generally on a month-for-month basis, provided this training was in one of the trades, crafts, or skills characteristic of an industrial shop. Such training may not be substituted for more than a total of 2 years of experience.

BASIS OF RATING

→No written test is required. For all grade levels, applicants who meet the minimum qualification requirements will be rated on a scale of 70 to 100 based on an evaluation of the quality and extent of the applicant's experience, education, training, or other achievements pertinent to the duties of the position to be filled.

For inservice placement actions at any grade the basis of rating is established by the agency in accordance with FPM Supplement 335–1.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to safely and efficiently perform the essential functions of the position. Usable vision is required and, depending on the essential duties of a specific position, usable hearing or speech may be required. However, in most cases, a specific physical condition or impairment other than complete loss of vision will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform. Reasonable accommodation may include, but is not limited to: job modification, provision of assistive devices, and/or job restructuring.←

Financial Assistant GS–5/7

Financial Analyst GS–9/12

Supervisory Financial Analyst GS–11/15

DESCRIPTION OF WORK

Financial Analysts perform analytical and evaluative duties to determine the accuracy and adequacy of security filings in reflecting the soundness of corporate organizations; evaluate the soundness of loans, grants, or other provision of capital or credit for the construction of community facilities, the economic development of domestic or foreign groups, or for other purposes; determine the financial soundness and capability of present and potential contractors; evaluate the adequacy and effectiveness of regulations governing savings and loan associations; and perform other duties which require comprehensive knowledge of the theory and principles of finance in their application to the financial operations of various types of business or other corporate organizations.

Supervisory Financial Analysts plan and direct the work performed by Financial Analysts.

EXPERIENCE REQUIREMENTS

Grade	*General experience (years)*	*Specialized experience (years)*	*Total experience (years)*
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11/15	3	3	6

General experience

General experience is progressively responsible experience in administrative, professional, investigative or other responsible work which has prepared the applicant to enter into a position involving the application of the principles of financial analysis.

Specialized experience

Specialized experience is progressively responsible experience in performing financial analysis and evaluation work requiring a comprehensive knowledge of (1) corporation finance and such specialized fields of finance (public finance, securities, international finance, the money and securities markets, investments, banking, etc.) as may be appropriate for the position being filled and (2) the financial and management structure, operations, and practices of corporate and other organizations.

Excess specialized experience may be substituted for the required general experience at all grade levels.

QUALITY OF EXPERIENCE

No additional length of experience beyond that shown for GS–11 is required for grade GS–12 and higher grades but a progressively higher level of experience is necessary to qualify for these grades.

→For all positions GS–11 and below, applicants must show either six months of experience at a level of difficulty equivalent to that of the next lower grade, or one year at a level of difficulty equivalent to that of the second lower grade in the Federal service. For grades GS–12 and above, one year of the required specialized experience must have been of a level of difficulty equivalent to that of the next lower grade in the Federal service.←

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for Supervisory Positions in General Schedule Occupations, in part III of this handbook.

NONQUALIFYING EXPERIENCE

Work of a clerical nature; work as a bookkeeper, collector, or teller; and work in the field of consumer credit or in the field of commercial credit where reliance is placed principally on published credit ratings, are not considered qualifying specialized experience.

SELECTIVE PLACEMENT

Some positions are so specialized that only persons with experience in financial analysis

and evaluation work in the same field can be expected to be successful. For such positions, only persons possessing experience of the appropriate type will be considered.

ADDITIONAL REQUIREMENTS

Applicants for positions requiring ability to meet and deal with people effectively must demonstrate such ability.

EDUCATION AND OTHER SUBSTITUTIONS FOR EXPERIENCE

1. *For a maximum of three years of general experience.*—Successfully completed study in an accredited college or university which included a major in finance, business administration, economics, or accounting may be substituted at the rate of one year of study (30 semester hours or equivalent) for nine months of experience. (Four years of such study, or completion of all requirements for a bachelor's degree, qualifies for grade GS–5.)

2. Full-time* graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For one year of specialized experience.*—One full academic year of graduate education in business administration, accounting, finance, economics, or directly related subjects. (This amount and kind of education meets all the requirements for grade GS–7.)

b. *For two years of specialized experience.*—Completion of all requirements for a master's or an equivalent degree, or two full academic years of graduate education, in one of the fields described in paragraph a above. (This amount and kind of education meets all the requirements for grade GS–9.)

3. The Superior Academic Achievement Standard in section III of part II, Instructions to Users, of this handbook, is applicable at grade GS–7.

4. Completion of a total of at least six years of prelegal and legal education which meets all the requirements for an LL.B. or J.D. degree will provide eligibility in full at grade GS–9.

WRITTEN TEST

A written test of general abilities is required at grades GS–5 and GS–7 but not at higher levels. The written test should be waived in in-service placement actions, but not for appointments outside the register.

BASIS OF RATING

Applicants for positions at grades GS–5 and GS–7 will be rated on a scale of 100 based on their scores on the written test and an evaluation of their experience and education.

Applicants for positions above grade GS–7 will be rated on a scale of 100 based on their experience and training as shown in their applications, and upon any additional information obtained by the U.S. Civil Service Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

* Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.

Issue date December 1968 (TS 121)
Reprinted without change September 1973 (TS 148)

Insurance Examiner GS–5
Insurance Examiner (Casualty) GS–7/15
Insurance Examiner (Marine) GS–7/15
Insurance Examiner (General) GS–7/15

EXPERIENCE REQUIREMENTS

Except for the substitution of education for experience as specified below, applicants must have had general and specialized experience as follows:

Grade	General (years)	Specialized (years)	Total (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11 and above	3	3	6

General experience.—General experience is experience in performing administrative, professional, investigative, or other responsible work that has provided a knowledge of contract, property, or insurance laws, or a knowledge of life, casualty, or marine insurance.

Specialized experience.—Specialized experience is progressively responsible experience involving the application of laws, regulations, and administrative rulings in the performance of such work as determining the kind and amount of insurance necessary to protect the security of Government or comparable business loans and the interest of the borrower under loan programs; determining the ability of motor carriers to qualify as self-insurers; analyzing rates and risk classifications to determine their reasonableness; or other insurance duties of a nonclerical nature.

Some positions are so specialized that only persons with experience in the same insurance specialty (casualty or marine) can be expected to be successful. For such positions, only persons possessing experience of the appropriate type will be considered.

No additional length of experience beyond that shown for GS–11 is required for grade GS–12 and higher grades, but a progressively higher level of experience is necessary to qualify for these grades.

For grades GS–12 and above, 1 year of the required specialized experience must have been of a level of difficulty equivalent to that of GS–11 in the Federal service. For all other positions, applicants must show either 6 months of experience at a level of difficulty equivalent to that of the next lower grade or 1 year at a level of difficulty equivalent to that of the second lower grade in the Federal service.

SUBSTITUTION FOR EXPERIENCE

1. Study successfully completed in a resident college or school above the high school level which included a major in insurance, accounting, business administration, or economics may be substituted for general experience at the rate of 1 year of education for 1 year of experience. For some positions (e.g., those concerned with construction projects or the evaluation of technical operations) a major in engineering or mathematics may also be acceptable. (Four years of such study, or completion of all requirements for a bachelor's degree, meets all the requirements for grade GS–5.)

2. Full-time* graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For 1 year of specialized experience.*—One full academic year of graduate education in one of the following: insurance, accounting, business administration, economics, engineering, or mathematics, or other directly related fields. (This amount and kind of education meets all the requirements for grade GS–7.)

b. *For 2 years of specialized experience.*—Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education,

*Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.

which is in one of the fields described in paragraph "a" above. (This amount and kind of education meets all the requirements for grade GS–9.)

3. The Superior Academic Achievement Standard in section III of part II, Instructions to Users, of this handbook, is applicable at grade GS–7.

4. Completion of a total of at least 6 years of pre-legal and legal education which meets all the requirements for an LL.B. or J.D. degree wil provide eligibility in full at grade GS–9.

Excess specialized experience may be substituted for the required general experience at all grade levels.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

WRITTEN TEST

A written test of general abilities is required at grades GS–5 and GS–7 but not at higher levels. The written test should be waived in in-service placement actions but not for appointments outside the register.

BASIS OF RATING

Applicants for grades GS–5 and 7 will be rated on a scale of 100 based on their score on the written test and an evaluation of their experience and education.

Applicants for grades above GS–7 will be rated on a scale of 100, based on their experience and training as shown in their applications and upon any additional information obtained by the U.S. Civil Service Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

LOAN SPECIALIST SERIES

Loan Assistant GS–5/7

Loan Specialist (Appropriate Specialization) GS–9/15

Specializations: *Agricultural*, *Commercial*, *Realty*, *General*

Description of work

Loan specialists perform such functions as: (1) examining and analyzing financial and credit risk factors involved in granting, guaranteeing or insuring loans or in purchasing mortgages; (2) counseling loan applicants regarding their financial management problems, and means and methods of financing loan repayment; (3) investigating problems that arise in connection with repayment of loans, and determining appropriate remedial or liquidation action; and (4) developing policies and procedures to govern loan programs, and coordinating and controlling loan program operations.

Experience, education, and other requirements

Except for the allowable substitutions provided for below, applicants must have had the amount and kinds of experience shown in the following table to qualify for the grades listed:

Grade	General (years)	Specialized (years)	Total (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11/15	3	3	6

General experience

This is experience in administrative, professional, investigative, technical, or other responsible work that has required ability to gather and analyze facts and figures, and to present such information, and conclusions drawn therefrom, in clear language, both oral and written.

Specialized experience

Specialized experience is that which demonstrates that the applicant can perform one or more of the following functions, as appropriate for the position being filled:

1. Analyze credit position and evaluate collateral offered as security for loans, considering earned and potential income, or in the case of loans to business firms, the skill and integrity of management, financial stability, relation of inventories to market value, and like matters;

2. Make appropriate modifications or adjustment of terms needed to insure repayment of delinquent or potentially delinquent loans;

3. Determine action relative to acquisition, management, sale or liquidation of real estate, equipment, or other collateral, that will provide satisfactory settlement of defaulted loans;

4. Offer guidance to borrowers as to sound financing policies and wise use of credit; or

5. Develop policies and procedures to guide or govern lending programs.

Experience demonstrating the above abilities may have been gained in such work as:

—Reviewing and passing upon applications for agricultural, commercial, bank or mortgage loans in the capacity of lender, guarantor, or agent for lenders or guarantors.

—Servicing a loan portfolio of a bank, building and loan or savings and loan association, insurance company or Government agency.

—Accounting or auditing in a lending institution.

—Financial analysis of commercial concerns for investment purposes.

—Appraisal of real estate to determine property valuation and structural stability of property.

Most positions at GS–9 and above require particular competence in specific types of loans such as commercial, realty, or agricultural loans. Where such a requirement exists, selection of applicants will be made from among those eligibles who possess knowledges appropriate to the specialization, listed below:

Agricultural.—Requires a knowledge of farm financing and credit and a general knowledge of farm operations.

Commercial.—Requires a knowledge and understanding of business systems, financial organization and management, analysis of financial statements, and methods of estimating earning trends and potential of a variety of business and industrial fields.

January 1962
Reprinted without change December 1975 (TS 156)

Realty.—Requires a knowledge of real estate values, construction, marketability, maintenance costs, pertinent realty law, etc.

General.—Applies to positions concerned with other types of loans or a combination of the above types of loans.

→*Supervisory positions*

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

Level and quality of experience

Eligibility in any grade will be based upon a clear showing that the applicant has had experience of a scope and quality sufficient to give him the ability to handle technical and/or administrative loan examining or servicing assignments commensurate with the duties of the grade. For any grade, length of experience beyond the required minimum is less important than demonstrated success in performing duties of a responsible nature.

Applicants for positions in grades GS–7 through GS–11 must show either 6 months of the required specialized experience at a level of difficulty comparable to the next lower grade or 1 year of experience at a level of difficulty comparable to the second lower grade in the Federal service. Applicants for grades GS–12 and above must show at least 1 year of the required specialized experience at a level of difficulty comparable to the next lower grade in the Federal service.

Applicants for all positions above the entry or training levels must demonstrate that they possess the following skills and abilities:

(a) ability to analyze statements of assets and liabilities and statements of earnings;
(b) understanding of business financial structure and management practices;
(c) knowledge and understanding of related economic factors and trends pertinent to the loan under consideration;
(d) working knowledge of laws and customs governing negotiable instruments; transfers of title to realty and chattels; and assignment of collateral;
(e) skill in computing the payments and costs involved in the loan transactions;
(f) ability to meet and deal effectively with lenders, loan applicants, and borrowers, and their representatives.

Substitutions permitted

For a maximum of 3 years of General Experience the following substitutions may be made:

1. Successfully completed study in a residence school above high school level with specialization in accounting, banking and credit, business administration, economics, finance, law, engineering, real estate operations, or statistics, on the basis of 1 year of education for 9 months of general experience. For positions concerned with agricultural loans, study in the fields of agriculture, agricultural economics, farm, livestock or ranch management, and rural sociology are also acceptable.

2. Membership in the Bar of a State, District of Columbia, or a territory of the United States.

3. Study of law successfully completed in a recognized law school on the basis of 1 year of education for 1 year of general experience.

4. The possession of a Certified Public Accountant certificate in a State, District of Columbia, or a territory of the United States,

provided the certificate number, date, and place of issuance are given on the application.

5. Any time-equivalent combination of 1 and 3 above.

For specialized experience

1. Completion of 30 semester hours of graduate study or all of the requirements for a Master's degree will be accepted as meeting 1 year of the specialized experience required for grade GS–7, provided it has been in one of the specialized fields of study mentioned in paragraph 1 under Substitutions Permitted for General Experience.

2. Completion of at least 6 full years of resident college work leading to an LL.B. or higher degree in a recognized law school will meet the entire experience requirement for grade GS–7.

3. Applicants who qualify for grade GS–5 on the basis of completion of a full 4-year course of study leading to a bachelor's degree may also be rated eligible for grade GS–7 if their performance in the written test and their college records (college grade average of "B" or equivalent or better, or graduation in the upper 25 percent of their class) clearly demonstrate that they have superior learning ability. This superior ability will be considered as a substitution for the 1 year of specialized experience otherwise required for GS–7 eligibility. The same standards will be used to measure this ability as are used in the current Federal Service Entrance Examination.

Written test

A written test is required for grades GS–5 and GS–7. The test may be waived for all noncompetitive actions except appointments outside the register.

Physical requirements

See part II, Physical requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

REALTY SERIES*

For positions in the Realty occupation, GS–1170 grades GS–5/15

Realty Specialist

(Also "Supervisory" and "Officer" positions)

DESCRIPTION OF WORK

Persons in this occupation advise on, plan, direct or perform such functions as acquiring real property by purchase, lease, or exchange; managing real property to obtain the best ecological, financial, or other return; and disposing of real property by sale, lease, grant, or exchange. This work requires a knowledge of real estate principles, practices, markets, and values.

EXPERIENCE, EDUCATION, OR TRAINING REQUIREMENTS

Except for the substitution of education provided, candidates must have had general and specialized experience of the length specified in the table below, and of the nature described in the statements that follow:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11 and above	3	3	6

General experience: is experience in administrative, technical, or other repsonsible work which provided opportunity (*a*) to gain skill in dealing with others in person-to-person work relationships, (*b*) skill in communicating ideas in writing; and (*c*) general knowledge of real estate terminology, contractual documents, or other fields related to buying, selling or managing real property.

Specialized experience: is experience which demonstrated that the applicant possesses good working knowledge of one or more of the following areas:

—Realty practices, laws, and values, including experience with realty transactions and conveyances; effects of various methods of acquisition and disposal upon the uses and value of land.

—Economic, social, or ecological factors affecting the use of real property, land, and associated natural resources, e.g., conservation, urban renewal, agricultural, and other practices.

—Management and financing practices of lease and sale of real property.

—Relocation assistance, payments, and services due to acquisition of real property.

Specialized experience *may* have been obtained in several fields, of which the following are representative examples. Experience not specifically described below should be evaluated as to whether it provided any of the kinds of knowledge outlined above.

—Acquiring real property for public utilities, corporations, or governmental entities (e.g., buildings, rights of access, land, or leasing property).

—Urban planning, if such work involved knowledge of realty values, markets, and trends.

—Administering architecture or construction program when knowledge of realty values is an integral part of the work.

—Property or sales management for real property, e.g., residences, commercial facilities, Government installations, agricultural or grazing lands, etc.

—Appraisal (residential, commercial, industrial, or agricultural).

—Title search, preparing title abstracts, plats and legal descriptions of property.

—Experience as forester, range of agricultural conservationist, or natural resource specialist when the work required substantial knowledge of values of real property and its resources.

—Legal or quasi-legal experience in the realty field.

—Administering credit for mortgage financing or real estate lending firms (not including work in a clerical or bookkeeping

*This standard supersedes the standard for this series that was issued in December 1968.

capacity, such as processing credit applications, servicing accounts, etc.).

ABILITIES AND SKILLS REQUIRED

In addition to the required experience, candidates for positions at grade GS–9 or above must demonstrate the following skills and abilities:

—Resourcefulness in adapting to new situations and in developing solutions to problems;

—Effectiveness in dealing with a wide variety of people and in oral and written presentation of information and concepts;

—Persuasive ability.

Supervisory experience

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook.

Level and quality of experience

Except for candidates who qualify on the basis of substitution of education for experience, for grades GS–7 through GS–11, at least 6 months of the required specialized experience must have been at a level of difficulty comparable to that of the next lower grade, or 1 year must have been at a level of difficulty comparable at least to that of the second lower grade in the Federal service. For grades GS–12 and above, at least 1 year of the required specialized experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

Substitution of education for experience

1. Education successfully completed in a residence school above high school level may be substituted for experience at the rate of 1 academic year of study for 9 months of experience up to a maximum of 4 years of study for 3 years of general experience, or for all experience requirements for grade GS–5.

2. Full-time* graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For 1 year of specialized experience*
One full academic year of graduate education in one of the following: real estate; regional, urban, or rural planning; geography; forestry; geology; business administration; industrial management; engineering; economics; architecture; accounting or other directly related fields. (This amount and kind of education meets all the requirements for grade GS–7.)

b. *For 2 years of specialized experience*
Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education, which is in one of the fields described in paragraph "a" above. (This amount and kind of education meets all the requirements for grade GS–9.)

*Part-time graduate education is also accepted at the rate of 30 semester hours (or equivalent) for 1 year of specialized experience.

SELECTIVE PLACEMENT

Some positions may require particular competence in one of the functions or types of real estate discussed in *Description of Work* above and may require specialized knowledges pertaining to these particular functions or types of real estate such as management, disposal or acquisition of agricultural and rural land, urban residential properties, or commercial or industrial properties, among others.

However, agencies should analyze realty positions to determine those skills required for each of their positions. Certification for realty positions depends more upon demonstrated abilities and skills to perform realty work than upon experience in a particular type or function of real estate.

WRITTEN TESTS

A written test of learning abilities is required for competitive appointments for grades GS–5 through GS–7 and for appointments outside the register. For inservice placement actions, the test is *not* required and, therefore,

may not be *used* on a pass-fail basis. In addition, the test may *not* be used in evaluating or ranking eligible employees unless the test is approved for this purpose by the Civil Service Commission (see section A–3, appendix A, FPM Supplement 335–1.) No written test is required for positions above grade GS–7.

BASIS OF RATING

Competitors are rated as follows:

1. *For competitive appointments at grades GS–5 through GS–7*, on the basis of the written test.
2. *For competitive appointments above GS–7, or for inservice placement at all grades*, on the basis of the extent and quality of experience and training relevant to the duties of the position.

Information used in rating will be secured from application forms, reference checks, and other sources.

GUIDE TO EVALUATING SPECIALIZED EXPERIENCE

The specialized experience required to perform work in this occupation may be gained in many different ways. Some positions may have highly specialized background requirements. In those cases, it is especially important to relate experience and education to the particular requirements of the position.

All positions in this occupation require integrity, tact, alertness, and the ability to learn and understand the particular realty functions and principles involved. Past performance should indicate the degree to which the candidate possesses these personal traits, skills, and abilities.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

GUIDES FOR EVALUATING CANDIDATES FOR INSERVICE PLACEMENT

Candidates for inservice placement should be evaluated on the basis of their total qualifications as related to the position to be filled. Guides for evaluating candidates are provided below.

Suggestions concerning what to evaluate

Note: Paragraphs (1) through (3) below apply to candidates for positions at grades GS–9 and above and paragraphs (4) through (7) below apply to all grade levels. Candidates for positions below the GS–9 level should be evaluated on the basis of their potential in both the knowledge and ability categories, their potential ability to understand and work with realty practices, regulations, values, etc.

(1) *The nature, scope and complexity of the work which the candidate has performed:* whether the candidate's experience has involved more than one function of realty (e.g., acquisition, disposal, property management); whether his experience included carrying the entire realty assignment from start to completion; whether his assignments were limited to certain parts of larger assignments; the extent to which his experience included work involving a variety of functions and principles of realty.

(2) *Knowledge of realty regulations, procedures, and policies:* the degree to which the candidate's work has involved application of knowledges of realty regulations, procedures, and policies; the degree to which the candidate had to apply judgment in the application of these knowledges and the degree to which he was required to select appropriate approaches to achieving his objectives.

(3) *Knowledge of realty values and market practices:* the degree to which the candidate's experience has required knowledge of realty practices; whether the candidate's experience demonstrated an understanding of the differing effects of economic and social factors on the realty market.

(4) *Ability to meet and deal effectively with others:* the degree to which the candi-

date has demonstrated ability to deal with a variety of people in many circumstances; whether he has demonstrated skill in coordinating his work with that of others; whether he has demonstrated the ability to persuade others to adopt his point of view or his recommended method; the degree to which he has demonstrated ability to deal with pressures exerted by others.

(5) *Analytical ability:* the degree to which the candidate has demonstrated the ability to analyze facts, alternatives, and problems independently and to arrive at conclusions which form the basis for his decisions and recommendations, the relative intensity of such analysis and the availability of precedents to guide his analysis; and the extent to which supervisory assistance was available.

(6) *Decision-making ability:* the degree to which the candidate has demonstrated the ability to evaluate alternative methods of solving problems, and to foresee advantages and disadvantages of alternative courses of action; whether the candidate has demonstrated the ability to consider pertinent facts, the ideas of others, and precedents in making a decision or recommendation; whether he has demonstrated the ability to make decisions under pressure and within deadlines.

(7) *Ability to speak and write effectively:* the degree to which the candidate has demonstrated ability to express himself clearly and effectively, both in writing and orally; the extent of his ability to explain decisions, procedures, and requirements in such a way as to gain a favorable response.

APPRAISING AND ASSESSING[1] SERIES

Appraiser GS–5/15

DESCRIPTION OF WORK

Appraisers estimate the value of real or personal property, or interests therein, in support of a variety of realty activities, such as acquisition, disposal, exchange, leasing, loans and loan insurance, and tax assessment. In gathering information to estimate value, appraisers review records and interview property owners, builders, real estate brokers, businessmen, etc. Appraisers develop estimates of value by application of a variety of appraisal principles and techniques.

EXPERIENCE, EDUCATION, AND TRAINING REQUIREMENTS

Except for the substitution of education provided below, applicants must have had the following kinds and length of experience:

Grade	*General experience (years)*	*Specialized experience (years)*	*Total experience (years)*
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11/15	3	3	6

General experience

Experience that demonstrates:

—Knowledge of general realty practices and principles as they relate to the value of real property;
—Skill in collecting and assembling data;
—Ability to deal effectively with individuals or groups;
—Ability to prepare clear and concise reports.

This experience may have been gained in types of work such as the following:

—Sales or management of real estate;
—Mortgage financing;
—Preparation of cost estimates for building construction (e.g., as a construction contractor);
—Urban planning, when the work involved a knowledge of real estate values and trends;
—Forestry, agricultural, or other work that required a knowledge of rural land values.

Specialized experience

Experience in the valuation of property that demonstrates a knowledge of, and the ability to apply, the principles, practices, methods, and techniques of appraising. Such experience must have demonstrated:

—Ability to plan an appraisal project;
—Resourcefulness and judgment in collecting the sales, cost, income, and other economic and social data affecting property value;
—Tact, discretion, and ability to obtain the cooperation of others;
—Ability to think logically, to analyze and evaluate data, and to come to sound conclusions;
—Skill in preparing written reports of appraisal findings in a clear and concise manner.

Specialized experience may have been gained in types of work (as appropriate) such as the following:

—Appraisal of residential, commercial, agricultural, and/or industrial properties for purposes of acquisition, disposal, mortgage financing, liquidation, loans, etc.;
—Appraisal of special rights and interests, such as rights-of-way, clearance easements, flood rights, leaseholds, etc.;
—Legal experience in eminent domain law, provided that the experience involved a detailed knowledge of appraisal principles, methods, and techniques;
—Appraisal of real property for tax purposes, provided the experience clearly demonstrated a knowledge of the valuation of individual properties for fair market value;
—Appraisal of personal property (appropriate as specialized experience only for those positions having a substantial requirement for personal property valuation).

[1] This standard supersedes the standard for this series issued in October 1960.

SUBSTITUTION OF EDUCATION AND TRAINING FOR EXPERIENCE

To be acceptable as substitution for general or specialized experience, the level and quality of the education and/or training must have equipped the candidate to perform appraisal duties at the grade level of the position to be filled.

1. Education successfully completed in an accredited college or university may be substituted at the rate of one year of study (30 semester hours or equivalent) for nine months of general experience. Four years of study in a college or university or completion of all requirements for a bachelor's degree qualifies for positions at grade GS–5.

2. The Superior Academic Achievement Standard in section III of Part II, Instructions to Users, of this handbook is applicable at grade GS–7.

3. Graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For one year of specialized experience.* One full year of study (30 semester hours or equivalent) in any of the following fields: Appraising, real estate, engineering, architecture, real property management, business administration, economics, agriculture, forestry, or other fields related to the position to be filled. (This amount and kind of education meets all the requirements for grade GS–7.)

b. *For two years of specialized experience* Completion of all requirements for a master's or an equivalent degree, or 2 full years of graduate education, that is in one of the fields described in paragraph a, above. (This amount and kind of education meets all the requirements for grade GS–9.)

4. Completion of a total of at least six years of prelegal education that meets all the requirements for an LL.B. or J.D. degree will provide eligibility in full for grade GS–9.

QUALITY OF EXPERIENCE

For positions at any grade, the amount of experience will not in itself be accepted as proof of qualification. The applicant's record of experience and training must show that he has the ability to perform the duties of the position.

For grades GS–11 and below, at least six months of experience must have been at a level equivalent to the next lower grade or one year of experience at a level equivalent to the second lower grade in the Federal service. For grades GS–12 and above, applicants must have had at least one year of experience equivalent to the next lower grade in the Federal service.

SUPERVISORY EXPERIENCE

For supervisory positions, the qualification standard for Supervisory Positions in General Schedule Occupations, in part III of this handbook, should be used in conjunction with this standard.

WRITTEN TEST

Applicants for competitive appointment to positions at grades GS–5 and GS–7 must pass an appropriate written test. The test is also required for appointments outside the register at grades GS–5 and GS–7.

For inservice placement actions, the written test is *not* required and, therefore, may *not* be used on a pass-fail basis. In addition, the test may *not* be used in evaluating or ranking eligible employees unless the test is approved for this purpose by the Civil Service Commission. (See section A–3, appendix A, *FPM Supplement 335–1.*)

No written test is required for positions at grade GS–9 and above.

SELECTIVE PLACEMENT

Some positions may require competence and knowledges relating to appraisals of particular types of properties (for example, some positions involve a substantial number of appraisals

of subdivision of multifamily housing, agricultural, timber, or mineral lands). Where such specialized requirements exist, selective placement of eligibles should be made on the basis of related experience, education, and/or training.

BASIS OF RATING

Candidates for competitive appointment to positions at grades GS–5 and GS–7 will be rated on the basis of their written test scores.

Candidates for positions at grades GS–9 and above will be rated on the basis of their experience, education, and training. Ratings will be based on statements in the application forms and any additional information received.

GUIDE FOR EVALUATING EMPLOYEES FOR INSERVICE PLACEMENT IN POSITIONS ABOVE THE ENTRANCE, OR TRAINEE LEVELS

Guidelines for evaluating employees' qualifications and promotion potential are discussed in *FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement.*

In evaluating each applicant's experience and training as related to the position to be filled, attention should be given to the following elements that identify the key knowledges, skills, and abilities important to success in most appraiser positions:

—Knowledge of basic appraisal principles, practices, methods, and techniques;

—Ability to select, gather, and analyze pertinent appraisal data;

—Ability to reach sound conclusions on value from a variety of data, much of which has only limited applicability; and to present well supported justifications for these conclusions;

—Ability to communicate clearly, both orally and in writing;

—Ability to deal effectively with people from a wide range of backgrounds (e.g., businessmen, farmers, Government officials, homeowners, etc.);

—Ability to review the work of others and to recognize deviations from accepted appraisal principles and practices, errors in computations, unjustified conclusions, etc.;

—Knowledge of specialized aspects of appraising, such as mineral appraising, timberland appraising, appraisal of personal property, severance damage determination, etc.

In evaluating specialized experience, the following general criteria may be used to identify the levels of difficulty of appraisal assignments:

1. Appraisals tend to be more difficult—
   (a) For uncommon and atypical properties for which there is no established investment market;
   (b) For larger and more valuable properties;
   (c) For properties for which there is little or no comparable data on sales price, construction costs, normal profits and operating costs, and other pertinent information;
   (d) For the valuation of special rights and interests, such as rights-of-way, easements, severance damages and offset benefits.
2. Experience as an expert witness in court proceedings normally indicates at least journeyman knowledge in the specific type of appraisal involved.
3. Demonstration of a level of ability in appraising one type of property (e.g., urban residential) does not imply the same level of knowledge or ability in appraising unrelated types of properties (e.g., rural agricultural).
4. Review of work done by other appraisers (either staff or fee) may often be a double check review, and therefore, of the same level of difficulty as the original appraisal (see the classification standard for this series for a further discussion of evaluating review work).

PHYSICAL REQUIREMENTS

See Part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

Housing Manager, GS–9/15
Housing Management Assistant, GS–5/7
Housing Management Specialist, GS–9/15

DESCRIPTION OF WORK

Housing Managers and Assistants perform work involved in the direct management of the onsite operation of one or more government-owned, leased, rented or contracted family housing projects, billeting facilities, transient or permanent individual and family living quarters, dormitory facilities, and special occupancy buildings, including adjacent service structures, roads, and surrounding grounds.

Housing Management Specialists and Assistants perform work involved in the evaluation of housing management programs, the development of administrative procedures, and providing advice and technical assistance related to the management of either Government-owned and operated housing projects or the housing management programs of local housing authorities which own and operate public housing under Federal financial assistance contracts.

The work in both specializations described above requires knowledges of Federal regulations and codes pertaining to the planning, development, construction, operation and utilization of Government-owned, leased, rented, contracted, insured or financially assisted housing facilities.

In addition, the work requires knowledges of the principles, techniques, and methodology of administering housing programs and projects and skill in the direct or indirect management of major housing activities such as: housing operation and maintenance; cost management and financial planning; eligibility and assignments; housing requirements surveys; new construction and improvements; and management-tenant relations.

EXPERIENCE REQUIREMENTS

Except for the substitutions for education provided for below, candidates must show that they have had the amount of general and specialized experience, as listed in the table below, which must be of the kind and quality described in the paragraphs following:

Grade	General experience (years)	Specialized experience (years)	Total (years)
GS-5	3	0	3
GS-7	3	1	4
GS-9	3	2	5
GS-11	3	3	6

General Experience

Progressively responsible administrative, professional, technical, managerial or related support work experience that provided the applicant with all of the following: (1) a general knowledge of housing utilization, including a familiarity with eligibility, assignment, occupancy, and termination activities; (2) the ability to organize, analyze, and evaluate facts or concepts and determine compliance or deficiencies related to established parameters; (3) the ability to express ideas and communicate information both verbally and in writing; and, (4) the ability to meet and deal with individuals and groups. Such experience may have been acquired through a combination of various activities; including:

—Experience in assembling and analyzing data, interpreting directives and regulations, applying or adapting standard procedures to meet operating needs, or in preparing detailed reports of findings, on the basis of comprehensive investigation or factfinding, and recommending corrective action required to effect proper administration.

—Experience in housing purchase or rental and occupancy activities involving the evaluation of residence for use, suitability, functional and physical condition, and availability and adequacy of utilities and equipment; the identification or selection of eligible tenant or buyer; dwelling unit assignments; and surveys of local rent or purchase costs, utility

rates and charges and other related factors.

—Experience in the planning, development, construction, and management of residential property.

—Experience in residential property or building maintenance operations in which the applicant gained a working knowledge of the structural items, fixtures, or materials, the operating equipment, utilities, and facilities characteristic of residential type properties and buildings so as to maintain their proper preservation and upkeep, normal service life and efficiency, and to provide a basis for sound housing management practices and economical project operations.

—Experience in determining existing physical or other conditions of community structures and layout (occupancy, density, cost, access streets and roads available, transportation available, health and safety facilities available, recreation available, utilities and facilities); identifying community needs and coordinating with appropriate agencies or activities responsible for providing such community services.

—Experience in community and tenant relations including development of cooperative dealings and harmonious relationships, adjustments of complaints, assistance on problems of health, safety, recreation, and social welfare needs of effected persons.

—Other comparable experience.

Specialized Experience

Progressively responsible administrative, professional, managerial or technical work experience that provided the applicant with all of the following: (1) a substantive knowledge of the principles, concepts, and techniques involved in the planning, financing, developing, constructing, managing and utilization of housing projects and facilities; (2) a knowledge of the full range of management activities normally associated with housing project operations; and (3) the ability to develop management and financial plans and coordinate workforces and resources in the direct operation of housing projects of facilities and/or the indirect management of subordinate housing programs. At grades GS–11 and above, a knowledge of Federal regulations and codes concerning the use and operation of Government-owned, leased, rented, or otherwise controlled land or housing assets is required. Knowledge of the social, economic, and other pertinent conditions of the persons and communities served is also desirable.

The specialized experience should have been gained in a combination of any of the following or equivalent types of work:

(1) Progressively responsible administrative work which required participation in, and the conduct of, the major management activities normally associated with housing project operation, including such activities as:

—Development and implementation of management policies, procedures, and work plans;

—Supervision and training of subordinate housing personnel;

—Cost management and financial planning of funds and expenditures related to project operation, maintenance, construction, and repair of project facilities, including control of available equipment and/or furnishings;

—Evaluation of housing management and maintenance cost and practices to obtain maximum efficiency and economy;

—Management of contractual services required for the maintenance, repair or renovation of housing facilities;

—Advising on local housing improvements, new housing proposals, construction plans and methods; and

—Community planning including provision of basic housing improvement program information, coordination with related programs such as utilities, transportation, realty (land use, rights of way, etc.).

(2) Progressively responsible administrative work in real property management as an employee or agent of a real estate firm, bank, insurance company, etc. engaged in the management of multiple unit residential housing operations, private housing developments, shopping centers, etc. The work must have provided experience in the following activities:

—Establishment of rent schedules;
—Property rental, lease negotiation and preparation;
—Property maintenance and repair which included responsibility for the efficient and economical maintenance of the owner's investment through property inspections and effecting needed repairs and alterations; and
—Fund management, i.e., the installation and maintenance of fiscal accountability control procedures and records to reflect income and expenses.

(3) Progressively responsible analytical studies in the field of housing planning, development, and operation when such studies are a part of, or supplement, work experience in either onsite operation of housing projects or various administrative and advisory staff activities associated with overall housing management program, residential development or policy control functions. These may have been financial, architectural, structural or social oriented studies of existing housing, housing requirements, housing conditions, etc., or administrative, organizational or procedural analyses of management policy instructions and techniques, rental or occupancy standards and practices, or adequacy of housing facilities and services.

(4) Progressively responsible work that involves planning, developing, and providing assistance to tribal or other tenant groups to improve housing accommodations, including a combination of such activities as:

—Working with tribal or tenant group to assist in the creation of local housing authorities;
—Acting in a liaison capacity with appropriate Federal, State, and local agencies or organizations;
—Providing technical assistance to housing authorities in the development of community plans and matters dealing with housing;
—Providing technical assistance and guidance during the planning, construction, and administrative phases of various housing projects;
—Assignments which provides knowledge of housing assistance programs at the local, State, and national levels; and
—Experience in construction and inspection of housing programs.

(5) Progressively responsible work in community relations as it relates to civic and public programs of community development, or to the organization or leadership of adult groups which are formed to sponsor resident participation in the improvement of community maintenance, health, and sanitation standards, and in educational, recreation, or other group type programs, when the total background of the applicant also shows experience in the field of housing management commensurate with the level of the position for which he or she is being considered.

For GS–9 and GS–11 housing management positions the qualifying experience or training of applicants must demonstrate possession of a high degree of potential or aptitude for the performance of studies, analyses, reviews, and evaluations of housing program management policies, procedures, and operations thereunder, and the ability to recommend corrective action to be taken and improvements to be made. In grades GS–12 through GS–15 positions, the technical, administrative, and managerial responsibilities of Housing Managers and Specialists increase greatly in scope, complexity, and importance. At these levels, therefore, the qualifying experience must show conclusively that applicants possess technical competence or program expertise in housing development and management

work and also show significant participation in program planning and coordination activities.

SUPERVISORY POSITIONS

Except for the first-level supervisory positions, applicants for position involving supervisory duties must have had at least 1 year of successful supervisory experience equivalent to that of the next lower grade level in this series.

For first-level supervisory jobs, there should be an affirmative showing that the applicant has aptitudes for the performance of the duties of the supervisory position. Evidence of such aptitude shall consist of success in special assignments requiring short term coordination or direction of the work of others, detail to supervisory positions, special training in supervisory techniques, or observation by supervisors and associates as to the applicant's qualities of leadership. (See "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X–118).

QUALITY OF EXPERIENCE

For any grade, possession of the required amount of experience will not in itself be accepted as proof of qualification for a position. The applicants's overall experience must have been of such scope and level of responsibility as to conclusively demonstrate they have the ability to perform the duties of the position for which they are being considered.

For positions through grade GS–11, applicants must have had at least 6 months of specialized experience at a level of difficulty and responsibility comparable to that of work at the next lower grade, or 1 year at a level comparable to that of the second lower grade in the Federal service. For positions in grade GS–12 and above, applicants must have had at least 1 year of specialized experienced at a level of difficulty and responsibility comparable to that of work at the next lower grade in the Federal service.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. For *General* Experience—for a maximum of 3 years of general experience, study successfully completed in an accredited college or university leading to a bachelor's degree with major study in such fields as urban planning, real estate, business administration, finance, economics, public administration or related fields may be substituted at the rate of 1 year of education for 9 months of experience.

2. For *Specialized* Experience—Successful completion of graduate study in an accredited college in any of the fields listed in item (1) above, which has provided the applicant with a thorough knowledge of housing management problems and which has included the preparation of a master's thesis or doctoral dissertation on a phase of housing management related to the duties of the position for which the applicant is being considered may be substituted on the following basis:

(a) One full academic year of study will be accepted for 1 year of experience;
(b) Two full academic years of study will be accepted for 2 years of experience; and
(c) Possession of a Ph. D. or equivalent degree will be accepted for 3 years of experience.

PHYSICAL REQUIREMENTS

Applicants must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicants' ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor

vehicle operation continue to carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators. These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Patent Adviser (All Specializations) GS–5/15

DESCRIPTION OF WORK

Patent advisers perform professional scientific or engineering work related to patents. Such work includes the analysis of inventions, the determination of patentability, and the preparation and prosecution of applications for patents. The work also involves making validity and infringement investigations, prosecuting appeals in the U.S. Patent Office, and serving in an advisory capacity to administrative and legal officers on patent matters. The work requires the knowledge of one of the fields outlined above, and of Patent Office procedures, patent law, and applicable precedents.

Typically, the patent adviser utilizes his professional scientific and technical knowledge in (1) evaluating inventions in terms of their potential scientific significance and importance to the Federal Government, (2) determining the potential patentability of invention, (3) preparing patent applications, (4) taking part in representing the interests of the Government and the inventory in prosecuting such applications before the Patent Office, and (5) advising inventors and others in his agency regarding patent matters.

At the lower levels, patent advisers receive extensive instructions in patent advisory functions to prepare them for advancement to the more difficult and responsible levels of advisory work. At the higher levels, they perform the full range of the work described above with substantial independence.

The following specializations are recognized in this series:

A. *Engineering fields*
- Chemical Engineering
- Electrical Engineering
- Electronic Engineering
- Mechanical Engineering

B. *Other fields*
- Chemistry
- Physics
- General

BASIC REQUIREMENTS FOR ALL GRADES

For GS–5 positions: Either A, B, or C is required:

A. Completion of a full 4-year curriculum of study in an accredited college or university leading to a bachelor's degree which included:

1. *Engineering fields*—a major in engineering;
2. *Other fields*—
   a. for Chemistry, 30 semester hours in chemistry;
   b. for Physics, 24 semester hours in physics.

B. At least 4 years of successful and progressive experience in a pertinent field of engineering, chemistry, or physics. This experience must have been of such a nature as to demonstrate that the applicant possesses an intimate working knowledge of the scientific principles of the field involved, to the same extent and degree that such a knowledge would have been acquired through successful completion of a full curriculum leading to a bachelor's degree in an accredited college or university as described in "A" above.

C. Any time-equivalent combination of "A" and "B" above.

Nonqualifying experience: The following experience, which may be associated with some fields of engineering, is not considered to meet the criteria expressed in "B" above, and will not be accepted as qualifying for these positions: Experience in construction and in shop positions such as foreman of skilled trades, erection foreman; and accounting, clerical, and timekeeping work on engineering jobs.

GS–5.—The basic requirements which apply to all grades are fully qualifying for GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

For positions in GS–7 and above:

Applicants for positions in grades GS–7 and above must show, *in addition to* the requirements for all positions described above, the fol-

lowing amounts of appropriate *specialized* experience:

Grade:	
GS-7	1 year
GS-9	2 years
GS-11 and above	3 years

Specialized experience is defined as professional patent work experience which has involved either the examination or the preparation and prosecution of applications for U.S. Patents. Experience gained as a Patent Attorney, Patent Adviser, Patent Examiner, Patent Classifier, Patent Interference Examiner, Patent Research and Development Examiner, Patent Examiner Specialist, or Law Examiner (Patents) is acceptable for any of the professional experience as required above. For positions classified at the GS-11 level and above, this experience must have clearly demonstarted the applicant's ability to perform such work *in the specialized area of science or technology appropriate to the position for which the applicant is being considered.*

SUBSTITUTIONS FOR SPECIALIZED EXPERIENCE

Certain types of training and/or experience may be substituted for the specialized experience in patent work described above. At GS-11 and above, such substitutions may be made, however, only if the substituted training or experience involved is in the *same* area of science or technology as is involved in the position for which the applicant is being rated.

A. *Work experience*

Applicants meeting the basic requirements may substitute either of the following types of experience for specialized experience:

1. *One year* of successful regular employment as a patent searcher for registered patent attorneys or agents may be substituted for *1 year* of specialized experience (i.e., will qualify for a maximum of GS-7); *or*
2. Professional experience in a field of engineering, chemistry, physics (or in an applied physical science, closely related to one of the fields of engineering listed, which requires a knowledge of engineering, scientific, or technical principles and techniques, and their application) may be substituted for specialized experience on a year-for-year basis up to a *maximum of 2 years* (i.e., will qualify for a maximum of GS-9).

B. *Legal training*

Applicants meeting the basic GS-5 requirements and who, *in addition*, possess professional legal training and competence, may substitute such training for *2 years* of specialized experience (i.e., will qualify for a maximum of GS-9). Such competence may be evidenced by:

1. The successful completion of a full course of study in a recognized school of law leading to a bachelor's degree or a higher degree in law; *or*
2. Membership in the bar of any State, Territory, or in the District of Columbia.

C. *Graduate study*

Successful completion of graduate study in an accredited college or university in physics, chemistry, an applied physical science, or in one of the listed fields of engineering, may be substituted for the required professional experience in patent work as follows:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.

D. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of

part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

E. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

QUALITY AND LEVEL OF EXPERIENCE

The experience or education must show that the candidate has the knowledge and capabilities required for the position for which he is being considered.

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

BASIS OF RATING

No written test is required.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

GENERAL PHYSICAL* SCIENCE SERIES **GS–1301 (p. 1)**

Physical Scientist GS–5/15

DESCRIPTION OF WORK

The General Physical Science Series includes positions which involve professional work in the physical sciences when there is no other more appropriate series, that is, the positions are not elsewhere classifiable. Thus, included in this series are positions that involve (1) a combination of several physical science fields with no one predominant, or (2) a specialized field of physical science not identified with other existing series.

BASIC REQUIREMENTS FOR ALL POSITIONS GS–5/15

For all positions, candidates must show successful completion of the requirements prescribed in either A or B:

A. A full 4-year or longer curriculum in an accredited college or university leading to a bachelor's or higher degree in physical science, engineering or mathematics that included 24 semester hours in physical science and/or closely related engineering science such as mechanics, dynamics, properties of materials, and electronics.

B. A combination of 4 years of experience and education that included 24 semester hours of physical science and/or closely related engineering science such as mechanics, dynamics, properties of materials, and electronics in an accredited college or university. This combination of education and experience must have demonstrated that the candidate has acquired a mastery of the fundamental physical and mathematical sciences comparable in scope and intensity to that which would have been acquired through the successful completion of a 4-year college or university curriculum as in paragraph A.

For those positions in any grade involving highly complicated or fundamental scientific research or similar difficult scientific duties candidates must have successfully completed the college curriculum specified in A above.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, the scientific field(s) involved in the position.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.

*This standard supersedes the standard for this series that was issued in December 1968.

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type explortory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

PROFESSIONAL EXPERIENCE

For positions at grades GS–7 and above, professional technological or engineering experience will be accepted only to the extent that it is scientific experience, that is, experience that involved the application of basic scientific principles and techniques to the solution of scientific problems, as in engineering research.

CREATIVE RESEARCH

The provisions for extra credit for creative research experience as stated in section II, part II of this handbook apply to positions covered by this standard.

SELECTIVE PLACEMENT

Positions covered by this standard vary widely in functions, organizational settings and combinations of disciplines and fields. Because of the diversity of positions and the diversity of acceptable qualifications, this standard should be interpreted in terms of the knowledges and abilities required for the specific position to be filled. For positions at all grade levels that require knowledge and experience of a special type, consideration may be restricted to eligibles

who possess the particular qualifications required to perform the work of such positions.

SUPERVISORY AND MANAGERIAL POSITIONS

For supervisory positions see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook. That standard may also be helpful in evaluating candidate's experience for staff positions engaged in planning, coordinating, reviewing and advising on the management/administration of broad scientific programs. Elements identified for second line supervisors may readily be adapted to the requirements for these staff scientific management positions.

AMENDED EDUCATIONAL REQUIREMENT

The provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook apply to positions covered by this standard.

GUIDE FOR EVALUATION OF CANDIDATES

Evaluation of candidates for positions at the GS–5 and GS–7 levels is based largely on their academic career with consideration also being given to any employment experience they may have had. In meeting the basic education requirement any field of physical science is acceptable. When evaluating a candidate's academic record, however, consideration should be given to the extent to which the courses contributed to his basic knowledge of the specific fields involved in the position. Extra credit may be given for excess courses in the particular specialties. The grades of candidates in courses related to the theory and techniques of the specialty and the candidate's relative class standing may also be considered in ranking.

In addition to evaluating the candidate's experience and training, consideration should be given to such factors as his general reasoning ability, ability to make practical application of theoretical knowledge, ability to understand basic scientific literature, and ability to write clear and accurate reports.

Candidates for positions at GS–9 and above

For positions at these levels, evaluation of undergraduate college training is less important than consideration of graduate training and professional work experience. The same factors that are used to evaluate the undergraduate academic record also may be used to evaluate the graduate record.

For research and similar work, education beyond that specified in the minimum educational requirement is especially valuable. Evidence of further study and personal development should be considered in determining quality of experience and ranking under promotion plans.

The nature and significance of the candidate's work experience should be evaluated with respect to the nature of work of the position involved. Consideration should be given to whether the experience involved the performance of professional work of increasing difficulty and complexity and the assumption of more responsibility.

As a supplement to other evidence, in evaluating candidates, consideration should be given to active membership in and presentations before professional organizations, technical publications, participation in seminars, awards, etc. In evaluating technical publications the number is not as important as the significance of their contribution to knowledge advancing the theories and methods of physical science.

BASIS OF RATING

No written examination is required. Candidates will be rated, on a scale of 100, on the extent and quality of their experience and training. Such ratings will be based upon candidates' statements in their applications and upon any additional information that may be secured by the Civil Service Commission.

PHYSICAL REQUIREMENTS

See part II, section V, Physical Requirements, paragraph 4; in addition, candidates must possess emotional and mental stability.

HEALTH PHYSICS SERIES[1]

Health Physicist GS-5/15

DESCRIPTION OF WORK

The health physicist performs professional work concerned primarily with the protection of personnel from the hazards of ionizing radiation. He identifies and evaluates radiation hazards; eliminates or controls exposure to the hazards; develops procedures to protect personnel and materials; advises on the radiological safety aspects of equipment, experiments, and uses of sources of ionizing radiation; evaluates radiation exposure data; organizes and administers radiological safety programs; and performs research and development of health physics instruments, methods, and techniques.

BASIC REQUIREMENTS FOR ALL GRADES

Candidates for positions at all levels must show successful completion of paragraph A or B:

A. A full 4-year or longer curriculum in an accredited college or university that satisfies the requirements for a bachelor's or higher degree in a field of natural science or engineering. The curriculum must have included at least 30 semester hours in health physics, engineering, radiological science, chemistry, physics, biology, and/or mathematics. The 30 semester hours must have included differential and integral calculus and a year of physics.

B. Four years of progressive technical experience and/or education that provided an understanding of sciences applicable to the field of health physics comparable to that which would have been acquired through successful completion of a full 4-year college course as described in paragraph A. This education and/or experience must have included or been supplemented by:

(1) courses totaling 30 semester hours as specified in paragraph A above; *or*

(2) certification as a health physicist by the American Board of Health Physics.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in health physics, or in radiological aspects of a directly related discipline or field of science such as radiological health, radiochemistry, radiation physics, or nuclear engineering.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

[1] This standard has been approved by the Administrator of Veterans' Affairs for use within the Department of Medicine and Surgery of the Veterans' Administration under the provisions of Section 4105, Title 38, U.S.C.

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

PROFESSIONAL EXPERIENCE

The experience must clearly demonstrate that the candidate has the personal qualities and technical competence to solve problems, direct or coordinate projects, or to conduct negotiations and contacts involved in professional work at the level for which eligibility is sought.

Professional experience is defined as experience in nonroutine, nontechnician phases of health physics or closely related science or discipline. This experience must have demonstrated a professional body of knowledge of health physics, a professional ability to apply scientific methodology to radiation protection problems, and a continuing development of professional knowledge and ability.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

SELECTIVE PLACEMENT

Some positions require specialized experience in a particular area of work within the field of

health physics, such as radiobiology or electronic instrumentation. For such positions, selection may be limited to those candidates whose records show evidence of the required capabilities.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

BASIS OF RATING

No written examination is required. Candidates will be rated, on a scale of 100, on the extent and quality of their education, experience, and accomplishments. Such ratings will be based upon statements of candidates in their applications, upon qualification inquiries, and upon any additional information that may be secured by the Commission.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for positions at GS–5 and GS–7

Most appointments to these grades are made from a register. Evaluation of candidates is based largely on their academic career, with consideration also being given to any employment experience they may have had. When evaluating a candidate's academic record consideration should be given to the extent to which the courses successfully completed contribute to his basic knowledge of health physics and related fields. Extra credit may be given for excess courses in physics, biology, chemistry, or in closely related disciplines. The grades of the candidate in courses in these disciplines and his relative class standing may also be considered in his ranking.

In addition to evaluating the candidate's academic record, information should be obtained on such factors as his general reasoning ability, ability to make practical application of theoretical knowledge, ability to understand basic scientific literature pertaining to radiation, ability to write clear and accurate technical reports, ability to follow instructions, and ability to cooperate with others in accomplishing his work.

Candidates for positions at GS–9 and above

For positions at these levels, evaluation of undergraduate college training is less important than the consideration of graduate training and professional work experience. The same factors that are used to evaluate the undergraduate academic record may also be used to evaluate the graduate record.

The evaluation of a candidate's work experience should consider its nature and significance, the extent to which it is related to work performed in the area of health physics, and whether it has involved the performance of professional work of increasing difficulty and complexity and the assumption of more responsibility.

Candidates may be certified as a health physicist by the American Board of Health Physics, as a radiological physicist by the American Board of Radiology, in the *Radiological* specialty by the American Board of Industrial Hygiene or in the *Radiation Hygiene and Hazard Control* specialty by the Environmental Engineering Intersociety Board. Such certification should be considered in evaluation of the level of competence of the candidate.

Candidates should also be evaluated for membership in and presentations before professional organizations, technical publications, participation in seminars and study groups, patents, awards, etc. Technical publications should be evaluated for their contribution to knowledge of health physics, rather than on their quantity alone.

In addition to possessing the personal characteristics listed above for candidates at the GS–5 and GS–7 levels, candidates for positions at GS–9 and above should be able to be evaluated for such traits as initiative, resourcefulness, ability to plan work, ability to supervise the work of others, etc.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, candidates must possess emotional and mental stability.

Physicist, GS-5/15

DESCRIPTION OF WORK

Physicists perform research or other professional scientific work in the investigation and application of the relations between space, time, matter, and energy in areas such as mechanics, sound, optics, heat, electricity, magnetism, radiation, or atomic and nuclear phenomena.

BASIC REQUIREMENTS FOR ALL GRADES

For all grades A or B is required:

A. A full 4-year course, in an accredited college or university, leading to a bachelor's degree. This study must have included courses in physics consisting of lectures, recitations, and appropriate practical laboratory work totaling 24 semester hours; *or*

B. Courses in physics, in an accredited college or university, consisting of lectures, recitations and appropriate practical laboratory work totaling 24 semester hours; plus additional appropriate experience or education which when combined with the 24 semester hours in physics will total 4 years of education and experience and give the applicant a technical and professional knowledge comparable to that which would have been acquired through the successful completion of the 4-year college course described in A.

In either A or B above, the courses must have included a fundamental course in general physics and, in addition, courses in any two of the following: electricity and magnetism, heat, light, mechanics, modern physics, sound.

All these courses must have been acceptable for credit toward the completion of a standard 4-year professional curriculum leading to a bachelor's degree at an accredited college or university, and must have been taught in the department of physics or be acceptable to that department as courses in physics toward meeting the institution's requirements for a major in physics.

For those positions in any grade involving highly complicated or fundamental scientific research or similar difficult scientific duties, selection may be restricted to those eligibles who show the successful completion of a full college education in an accredited college or university including the courses in physics specified above.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, physics.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research position.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

CREATIVE OR OUTSTANDING RESEARCH

Where applicants show positive evidence that they have performed highly creative or outstanding research, which has led, or can lead to a major advance in a specific area of research, or to a major advance in the field of physics, they may be rated on this basis for highly demanding research positions which require similar abilities in order to perform the work. Applicants who meet this criterion may be rated eligible for the next higher grade above that for which they would normally be rated, *provided* they have not been rated at this grade on the basis of meeting the graduate study requirements.

To receive this credit, the work must have been creative in the sense that it developed a basic principle, concept, method, approach or technique (or provided a body of basic informa-

tion) which opened the way for major advances in the field of physics by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of the science in a major area.

COLLEGE TEACHING

College-level teaching of physics may be considered as professional experience in physics. In accepting and evaluating teaching experience, all specific requirements of the examination pertaining to professional experience generally, such as those of grade level, responsibility, scope, specialization, or possession of knowledges, abilities, and attainments, apply also to teaching experience. Teaching experience which is accompanied by a significant amount of research, direction of research, investigative, or similar work may be credited at full value in meeting a specific requirement of research, investigative, or similar experience.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

BASIS OF RATING

No written examination is required. Candidates will be rated, on a scale of 100, on the extent and quality of their education, experience, and accomplishments. Such ratings will be based upon statements of candidates in their applications, upon qualification inquiries, and upon any additional information that may be secured by the Commission.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 4.

PHYSICAL SCIENCE TECHNICIAN SERIES*

Physical Science Aid GS–1/4
Physical Science Technician GS–5/12

DESCRIPTION OF WORK

Physical science technicians perform nonprofessional technical work in one or a combination of the following fields: Astronomy, chemistry, geology, geophysics, health physics, hydrology, metallurgy, oceanography, physics, and other physical sciences. They assist professional employees by performing duties such as calibrating and operating measuring instruments, mixing solutions, making chemical analyses, setting up and operating test apparatus, and compiling and processing scientific data.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Written test

Candidates for positions in grades GS–2 and GS–3 must pass a written test of abilities necessary to learn and perform the duties of these positions.

Candidates for positions at GS–1 must (1) pass the written test; or (2) present satisfactory evidence of successful completion of a full 4-year or senior high school curriculum; or (3) show 3 months of appropriate training or experience which has demonstrated aptitude for science.

Experience requirements

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–1	0	0	0
GS–2	½	0	½
GS–3	1	0	1
GS–4	1½	½	2
GS–5	2	1	3
GS–6	2	2	4
GS–7	2	3	5
GS–8 and above	2	4	6

Candidates must meet the experience requirements specified below. (Successfully completed education of acceptable type, quality and duration may be substituted for experience.)

General experience.—Technical experience in either a laboratory or field environment in one of the physical sciences or a closely related discipline which provided some of the basic knowledges or skills involved in one or more of the following:

(a) Gathering, recording and assembling scientific or engineering data;
(b) Using scientific instruments to measure angles, degrees, weights, strengths, intensities, etc.;
(c) Setting up and operating test apparatus;
(d) Manipulating quantitative data.

Illustrative of positions which may provide this type of general experience are: mathematics technician, surveying technician, equipment specialist, draftsman, laboratory mechanic, construction inspector, and procurement inspector.

Specialized experience. — Nonprofessional technical work in one of the physical sciences or in a closely related field, which required application of the principles, methods, and techniques for the position for which the candidate is applying. Illustrative occupations in which specialized experience may be gained in technician positions include the fields of astronomy, physics, geophysics, chemistry, hydrology, health physics, engineering, electronics, geology, oceanography, and metallurgy.

Experience as a laboratory mechanic or in a trade or craft may be credited as general or specialized experience when the work was performed in close association with physical scientists or other technical personnel and provided intensive knowledge of appropriate scientific principles, methods, techniques, and precedents. (Excess specialized experience may be substituted on a month-for-month basis for general experience.)

Supervisory → positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard. ←

QUALITY AND LEVEL OF EXPERIENCE

For eligibility *at grade GS–4*, candidates must have had at least 6 months of specialized experience comparable in difficulty and responsibility to the GS–3 level.

*This standard supersedes the standard for this series which was issued in November 1965.

For eligibility *at grade GS–5*, candidates must have had at least 1 year of experience comparable in difficulty and responsibility to the GS–4 level, of which at least 6 months must have been specialized experience.

For eligibility *at grades GS–6 through GS–11*, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade. Specialized experience acceptable under this paragraph must have been characterized by progression in difficulty and responsibility or variety, or must have been supplemented by academic study so that there is substantial development of the candidate's knowledge and ability.

For eligibility *at grade GS–12*, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service.

For positions *at GS–9 and above*, at least 1 year of the specialized experience must be directly related to the duties of the specific position to be filled. Placement of technicians in positions at GS–9 and above, either through selective certification or in-service placement, must be predicated upon (1) a detailed job analysis of the knowledges, abilities, and skills required for the work, and (2) an itemized matching of the candidate's knowledges, abilities, and skills sufficient to assure satisfactory performance.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must demonstrate that he possesses the ability to perform the duties of the position.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

GS–2: Graduation from a full 4-year senior high school, in a curriculum which included 1 year of algebra or more advanced mathematics and two ½-year courses in other mathematics, natural or physical science, and/or technology (e.g., drafting or surveying) may be substituted in full for the experience requirements at the GS–2 level. (High school education may not be substituted for any part of the experience requirements for GS–3 and above.)

GS–3: Successful completion of 1 academic year of post high school education in an accredited college, junior college, or technical institute that included or was supplemented by at least 12 semester hours in any combination of courses such as physical science, engineering, or any branch of mathematics except financial and commercial mathematics, may be substituted for 1 year of experience, and meets in full the experience requirements at the GS–3 level.

GS–4: Two years of academic study as described for GS–3 above, which included or was supplemented by at least 24 semester hours in any combination of the subjects as listed, may be substituted for 2 years of experience including one-half year of specialized experience, and meets in full the experience requirements at the GS–4 level.

GS–5: Four years of academic study as described for GS–3 above, which included or was supplemented by at least 48 semester hours in any combination of the subjects as listed, or successful completion of a full 4-year course in a college or university leading to a bachelor's degree with major study in an appropriate field of physical science, may be substituted for 3 years of experience including 1 year of specialized experience, and meets in full the experience requirements at the GS–5 level.

Appropriate education and training other than that outlined above, such as in manpower development programs or military training programs, will be granted credit, generally on a month-for-month basis, depending upon its applicability and extent. The maximum amount of experience for which education of any kind may be substituted is 3 years.

(TS 107)
May 1967

Reprinted without change
December 1975 (TS 156)

EXTRA CREDIT FOR OUTSTANDING COMPETENCE
(OPTIONAL PROVISION)

For positions at GS–9 and above, candidates who show positive evidence of outstanding competence and exceptional accomplishment may be rated eligible for the next higher grade than that for which they would otherwise qualify on the basis of the standard requirements of education and experience. Such candidates must demonstrate (*a*) outstanding competence based on a combination of factors such as subject-matter knowledge, creativity, specialized skills, progression of experience, and continuing growth through academic study; (*b*) a record of accomplishment which is recognized in the professional and technical community as exceptional and is marked by awards, published papers, citations, patents, or similar evidence; (*c*) proven ability to perform fully the work of the position to be filled; and (*d*) that they are clearly outstanding with respect to candidates with comparable backgrounds of experience and training. (*Note:* This provision for an extra grade (in this and other technician standards) is intended to be used rarely and in each case should be fully documented. The Civil Service Commission's Standards Division would appreciate receiving a brief summary of each such case.)

BASIS OF RATING

Competitors for all positions will be rated on a scale of 100. The basis of rating will be:

For GS–1: An evaluation of experience and training or written test scores.

For GS–2 and GS–3: Written test scores.

For GS–4 and above: An evaluation of experience and training.

The information for evaluating experience and training will be taken from the application form and any additional information obtained through confidential inquiries to supervisors, teachers, and other references.

NONCOMPETITIVE ACTIONS

Written test

The test may be waived in noncompetitive actions, but not for appointments outside the register.

Credit for high school education

In noncompetitive actions successfully completed high school education may be credited in accordance with the "add-on" rule, section 3–1(b), FPM chapter 337.

SELECTIVE CERTIFICATION

Some positions may require the possession of special knowledges and skills. Selective certification may be used in such instances to assure that only those candidates with the appropriate experience, training, or other qualifications are considered. Selective certification may be based on knowledge of the scientific principles of a broad segment of a discipline, or on required competence in operation of complex equipment, e.g., spectroscope.

GUIDE FOR EVALUATION OF CANDIDATES

Evaluation of education

The nature and quality of basic education is of most value in evaluating candidates at the lower levels. Education is typically of less significance at GS–6 and above as compared with experience. The following aspects should be considered in evaluating education:

1. *The extent of preparation in the specific field or fields in which the work is involved*
   Courses in science vary greatly from college to junior college to technical institute in number, variety, scope, and quality. Distinctions in quality can be made, over and above the courses meeting the basic requirements, on the extent to which the additional courses in the appropriate scientific discipline contribute to the specialized knowledge required for the position.
2. *The extent of preparation in related fields*
   Courses in science, mathematics, and engineering which are considered related to the principal scientific discipline can be extremely valuable since it may allow the

technician to contribute to the general scientific effort rather than be called upon only when his specialized skills are required.

3. *Academic achievements*
Consideration might well be given to achievement in science courses, the candidate's general standing in his class, and other academic achievements. These are of most use where other measures (e.g., evaluation of work experience) are not available.

Evaluation of experience

Evaluations of experience for both competitive and noncompetitive actions can best be made by scientists and/or high grade technicians who have had some training in examining qualifications and appraising the significance of technical achievement.

For technician positions the evaluation of experience logically includes appraisal of personal attributes and characteristics as demonstrated in performance on the job. This includes the degree and scope of technical knowledge, skills, and abilities possessed by the applicant which can be brought to bear upon the problems in the position for which considered.

The following may be considered in the evaluation of experience:

1. *Nature, level, recency, and progressiveness of experience*
The best experience in most instances is that which shows normal progression in duties and responsibilities to at least a level which demonstrates the applicant's ability to successfully perform the duties of the position for which he is being considered. "Stale" experience or experience which does not demonstrate steady progression can be considered to have less value.
Collateral experience, including valuable technical experience in excess of requirements, and experience in closely related occupations such as biological technician, engineering technician, mathematics technician, and the like, may be given appropriate additional weight. Wage board experience should also be given proper consideration.

2. *Technical accomplishments*
Considered here is the candidate's demonstrated knowledge of the technical subject matter with which he has been involved. This may be shown by awards earned by the candidate for his part in aiding technical effort, as well as by the type and number of technical reports which the applicant has authored (or has been recognized as coauthor or contributor) and patents applied for and/or awarded.
Accomplishments should be appraised in consideration of the opportunities afforded by past assignments and the level of these assignments. Often employees in certain scientific or quasi scientific functions are unable to perform at their full capacity, and, therefore, other means of forecasting possible success in a new work situation must be found.

3. *Personal attributes, abilities, and characteristics*
Following are some of the more desirable abilities and personal characteristics for candidates for physical science technician positions:
   a. Reasoning ability;
   b. Attention to detail;
   c. Knowledge of specific scientific principles involved in the given work situation;
   d. Manipulative skill;
   e. Ability to write reports (at higher grade levels).

Methods of evaluation

Useful procedures for evaluating candidates for technician positions are described in Appendix A to Part II, Guide to Evaluation of Employees for Promotion, Handbook X–118. Several procedures are suggested in this material, one or more of which may be appropriate for the varied types of positions properly classified in this series.

Certain information in addition to that provided in SF–57 is needed for proper evaluation of qualifications for many positions in the GS–1311 Series. This includes evaluations by supervisors, peers (and, in the cases where the applicant has been a member of a research team, the "team leader"), and others in a position to provide information on accomplishments and personal characteristics, as well as the quality of performance on the job.

Supplemental applications may be used as necessary to obtain from the candidate the necessary information regarding self-development activities, publications, patents, etc.

PHYSICAL REQUIREMENTS

See Part II, Physical Requirements, paragraph 4.

Geophysicist GS–5/15

DESCRIPTION OF WORK

Geophysics, the science of earth physics, involves professional work concerned with:

(1) the electric, magnetic, and gravitational field of the earth,
(2) deformation of the earth,
(3) the motion and constitution of the earth,
(4) cosmic physics in its relation to the earth and its atmosphere, and
(5) response of the earth to artificially applied fields of force.

BASIC REQUIREMENTS FOR ALL GRADES

A or B is required.

A. A full 4-year or longer curriculum in an accredited college or university leading to a bachelor's or higher degree. The course work must have included at least 30 semester hours in mathematics and the physical sciences (geophysics, physics, engineering, geology, astronomy, meteorology, electronics, etc.). At least 20 of the 30 semester hours must be in a combination of geophysics, physics and mathematics which included a minimum of 8 semester hours in geophysics and/or physics and a minimum of 8 semester hours in mathematics including differential and integral calculus. *In addition*, for positions which require geological interpretation of data, the course work must have included or been supplemented by at least two courses from among the following: structural geology, regional geology, stratigraphy, economic geology (metals, nonmetals, mining, fuels, ground water, engineering), field geology.

B. 30 semester hours of course work of the type and quality described in "A" above, in an accredited college or university, *plus* additional appropriate experience and education in scientific fields which when combined with the specified course work will total 4 years of experience and education and give the candidate a technical and professional knowledge comparable to that which would have been acquired through the successful completion of a 4 year college or university curriculum as described in "A" above.

For positions which require application of highly developed scientific knowledge in research, development, evaluation or similar creative activities, or which involve training for the performance of such work, candidates must have successfully completed the full college curriculum as prescribed in paragraph A.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, geophysics.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable

to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph.D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

CREATIVE OR OUTSTANDING RESEARCH

Where candidates show positive evidence that they have performed highly creative or outstanding research, which has led, or can lead to a major advance in a specific area of research, or to a major advance in the field of geophysics, they may be rated on this basis for highly demanding research positions which require similar abilities in order to perform the work.

Candidates who meet this criterion may be rated eligible for the next higher grade above that for which they would normally be rated, provided they have not been rated at this grade on the basis of meeting the graduate study requirements.

To receive this rating, the work must have been creative in the sense that it developed a basic principle, concept, method, approach or technique (or provided a body of basic information) which opened the way for major advances in the field of geophysics by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of the science in a major area.

SELECTIVE PLACEMENT

For positions at all grade levels that require knowledge and experience of a special type, consideration may be restricted to eligibles who possess the particular qualifications required to perform the scientific survey or research duties of such positions.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

BASIS OF RATING

No written examination is required. Candidates will be rated, on a scale of 100, on the extent and quality of their experience and training. Such ratings will be based upon candidates' statements in their applications and upon any additional information that may be secured by the Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 9, except that a few positions may be suitable for persons with an amputation of arm, hand, leg, or foot. In addition, candidates must possess emotional and mental stability.

Hydrologist GS–5/15

DUTIES STATEMENT

Hydrologists perform professional work such as the following:

—Study and predict the interactions within the hydrologic cycle with relation to precipitation, evapotranspiration, streamflow and subsurface water as influenced by the surface and subsurface characteristics of the watershed and the works of man.

—Investigate the transport of sediment and dissolved materials in natural waters and the physical and biological changes resulting from this transport.

—Evaluate the quantities, rates of movement and quality of water in the various phases of the hydrologic cycle.

BASIC REQUIREMENTS FOR ALL GRADES

A. A full 4-year course of study at an accredited college or university leading to a bachelor's or higher degree with major study in physical or natural science, or engineering. The study must have included at least 30 semester hours in any combination of courses in hydrology, physical science (including geophysical sciences), engineering science, soils, mathematics, aquatic biology, or the management or conservation of water resources. The course work must have included differential and integral calculus, and physics.

B. Four years of education and/or experience, including a total of 30 semester hours in any combination of courses in hydrology, physical science (including geophysical sciences), engineering science, soils, mathematics, aquatic biology, or the management or conservation of water resources. The course work must have included differential and integral calculus and physics. The combination of education and experience must demonstrate that the candidate possesses professional knowledge and skills comparable to those that would normally be acquired through the education described in A.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, hydrology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	Minimum amount of professional experience in appropriate subject-matter fields (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the the following amounts and levels of education

are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph.D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study are required when— a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are typically and preferably acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are typically and preferably acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may normally be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

CREATIVE RESEARCH

Except for candidates who qualify for a particular grade on the basis of meeting the graduate requirements, candidates who have made a *creative research contribution* to the field of hydrology may be rated eligible for the next higher grade than that for which they qualify under standard education and experience requirements.

Such research must have been on a hitherto unsolved problem or problems. It must have been creative in that it produced a basic principle, concept, method, approach, or technique that not only solved the specific problem at hand, but also is directly applicable in the solution of other problems, and may open a new area of research.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in

General Schedule Occupations," in part III of this handbook.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

GUIDE FOR EVALUATION OF CANDIDATES IN RELATION TO JOB REQUIREMENTS

Evaluation of education

A. *Undergraduate Education*

The nature and quality of the basic education is of most value in evaluating candidates at the entrance levels (GS–5 and GS–7) and to some extent at GS–9. Undergraduate training is of less significance at succeedingly higher levels as compared with experience. Three aspects are important for consideration:

1. *The extent of preparation in hydrology.*—Courses in hydrology required for graduation or available as electives vary greatly from institution to institution in number, variety, scope and quality. Distinctions in quality level can be made on the extent to which courses in hydrology contribute to the broad or specialized knowledge required for the position for which being considered.

2. *The extent of preparation in related sciences.*—Adequate preparation in physics, chemistry and mathematics is an important requirement for hydrology work. Courses in civil engineering and related sciences such as geophysics, geology, forestry, meteorology, oceanography, and biology, contribute to the ability of the candidate to perform in the general field of hydrology as well as in specialized areas. Distinctions in quality levels may be made to reflect the nature and quality of preparation in basic and related sciences which contribute to the candidate's broad knowledge of hydrology.

3. *Academic achievements.*—Consideration might well be given to achievement in science courses, the candidate's general standing in his class, and other academic achievements. These are of most use where other measures (e.g., evaluation of work experience) are not available.

B. *Graduate Education*

The nature and quality of graduate education is a significant factor in evaluating any candidate, but is especially important in evaluating candidates for research positions.

Distinctions in quality level, as appropriate to the kinds of positions for which being rated, may be made on the same basis as for undergraduate education, i.e., extent of preparation in hydrology, extent of preparation in related sciences, and academic achievements. Distinctions may also be made on the extent to which significant research was performed as a part of the graduate study, and on the quality and pertinence of such research.

Evaluation of experience

Candidates whose experience in hydrology has been in the Federal Government may have worked in one or more of a variety of occupational series. The primary series in which they may have gained experience that demonstrates a thorough knowledge of hydrologic principles and practices are Civil Engineering, GS–810, Meteorology, GS–1340, Geology, GS–1350, Chemistry, GS–1320, Soil Conservation, GS–457, and Forestry, GS–460.

For scientific positions the evaluation of experience necessarily and logically includes appraisal of personal attributes and characteristics as demonstrated in performance on the job. This includes the degree and scope of scientific knowledge possessed by the applicant which can be brought to bear upon scientific problems in the position for which considered.

The following may be considered in the evaluation of experience:

A. *Nature, level, recency, and progressiveness of experience.*—All other things being

equal, the best experience is that which shows normal progression in duties and responsibilities at least to a level demonstrating the applicant's ability to perform successfully at the level for which being considered. Stale experience or experience which has not progressed steadily in difficulty and responsibility can be considered as a detracting factor.

Experience which has comprised many varied hydrology duties involving the use of knowledge in a number of fields of related sciences is generally the more valuable experience because of its broadness. However, for positions involving work in a specialized field, consideration may be given as appropriate to the depth and intensity of experience in that field.

Collateral experience, including valuable experience in excess of requirements, and experience in closely related sciences or the fundamental physical sciences, may be given appropriate additional weight.

B. *Scientific accomplishments.*—Considered here are the candidate's demonstrated knowledge of hydrology and related sciences, his scientific interest as shown by self-development activities, his stature in the profession, and his accomplishments (considering opportunities for such).

Judgments by coworkers or colleagues are highly important in appraising scientific accomplishments. Evidence used to appraise accomplishments includes publications, participation in professional societies, leadership activities in the field of endeavor, honorary and other recognition, contributions to knowledge, and the like. Publications should be carefully appraised in terms of their total contribution to knowledge about the field, rather than judged by volume. Citations by others as an authority, however, may serve as a partial index of the value of published work. The extent of professional recognition may be judged by such things as invitations to present papers before professional groups (international, national, regional, local); activities in professional sciences; use as a resource by other scientists; and the like.

Hydrologists, as they advance in level of responsibility, are expected to show signs of vigorous professional development as a method of keeping abreast of the field. Lack of evidence of this development legitimately may be considered as detracting from the overall quality level assigned.

Accomplishments should be appraised in consideration of the opportunities afforded by past assignments and the level of these assignments. Negative accomplishments which disprove theories may be given as much weight as positive accomplishments, as appropriate.

C. *Personal attributes, abilities, and characteristics.*—Following are some of the abilities and personal characteristics most important in hydrologist positions. They may be given weight as appropriate for the position for which being considered:

1. Originality and creativity.
2. Reasoning ability.
3. Ability to write reports.
4. Resourcefulness.
5. Planning ability.
6. Ability to work with others on a team.

The evaluation should take into account the obvious and realistic differences between various assignment situations (e.g., research and nonresearch) by giving appropriate weight to the extent to which work demands of the assignment are met. For example, in some cases, the rating would need to recognize the requirement to do field survey work as a factor, and might consider the extent to which the applicant is interested in such scientific investigation with its limitations and compensations as well as any history of disability which could render him incapable of participating as a member of a survey team. Careful inquiry should be made particularly for positions requiring that employees live and work in a demanding environment for any length of time.

Methods of evaluation

The following methods of employee evaluation are suggested for inservice placement:

(1) *Appraisal of overall experience and education.*—This may be based on information in the personnel file of the employee, with particular attention to those aspects of experience and educational attainments which would have special value in the job setting or which have particular relevance to the requirements of the position to be filled. (This information may need to be updated by the use of supplemental application forms.)

(2) *Supervisory appraisals.*—These may be obtained by interviewing present and former supervisors, or by requesting written appraisal reports. To be of maximum value in employee evaluation, the responses on which the appraisals are based should be directed to (*a*) specific work assignments, as well as overall appraisals, (*b*) those aspects of the requirements of the position to be filled which are critical to successful performance, and (*c*) those elements of the employee's performance which would tend to indicate potential for successful performance in the position for which he is being considered.

(3) *Evaluation of work products.*—These may have particular value in considering employees for promotion to positions with requirements for writing ability. Illustrative work products, particularly those which involve technical explanations or interpretations, have special value in determining whether the prospective candidates would be able to meet this requirement of the position.

Other methods of value in appraising employees' qualifications and promotion potential may be found in FPM Supplement 335–1, "Evaluation of Employees for Promotion and Internal Placement."

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 9. There may be a few positions suitable for persons with amputation of arm, hand, leg, or foot. In addition, applicants must possess emotional and mental stability.

HYDROLOGIC TECHNICIAN SERIES

Hydrologic Aid GS–1/3

Hydrologic Technician GS–4/12

DESCRIPTION OF WORK

Hydrologic aids and technicians apply practical knowledge of methods and techniques; and of the construction, application, operation, and limitations of instruments, equipment, machinery, and materials used in hydrologic investigations. They collect, select, compute, adjust, and process data; prepare charts and reports; and perform related duties supporting professional work in hydrology, the science concerned with the study of water and water sources, and the processes governing the depletion and replenishment of the water resources of the land areas of the earth.

EXPERIENCE, TRAINING AND RELATED REQUIREMENTS

Experience requirements

Candidates must have had experience as described below. (Education may be substituted for experience.)

Grade	Length of experience (years)
GS–1	0
GS–2	½
GS–3	1
GS–4	2
GS–5	3
GS–6	4
GS–7	5
GS–8 and above	6

For grade GS–1, no experience, training, or education is required. Candidates must be interested in and willing to learn and perform hydrologic aid work and show evidence of likelihood of success in this work.

For grades GS–2 and 3, candidates must have experience in the amount specified that provided familiarity with hydrologic aid work or which provided knowledges that would be helpful in developing skill in making measurements, using test instruments, computing, reading engineering drawings, or other hydrologic aid work. The following are examples of qualifying experience:

—Apprentice training which included instruction in mathematics, mechanical drawing, estimating, or other work related to that of technicians.

—Rodman or chainman on a surveying team.

—Draftsman or aid to an engineer or scientist.

—Laboratory aid assisting in conducting tests or operating instruments.

For grades GS–4 and above, the experience must have provided the candidates with practical knowledge of principles, methods, and techniques applied in collecting, evaluating, computing, processing, and applying hydrologic data. At any grade level the total amount of the experience specified need not be directly in hydrologic work. But, the sum total of a candidate's experience should provide the knowledges, skills, and abilities (including knowledge of hydrologic principles and practices) applicable and required to perform work at the level of the hydrologic technician position to be filled.

Examples of occupational experience that may provide some of the knowledges, skills, and abilities pertinent to the work of hydrologic technicians are: work as technicians or aids in engineering, earth or physical science, forestry, soil conservation, or surveying; trades or crafts work in maintenance or construction of facilities or equipment related to hydrology; drafting; or construction estimating.

For grade GS–4, 6 months of the required experience must have been comparable in difficulty and responsibility to the GS–3 grade level.

For grade GS–5, at least 1 year of the required experience must have been comparable in difficulty and responsibility to the GS–4 grade level.

For grades GS–6 through GS–11, at least 1 year of required experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service,

or 2 years comparable to the second lower grade in the Federal service.

For grade GS–12, at least 1 year of the required experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's total record of experience and education must demonstrate that he possesses the ability to perform the duties of the position.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook will apply.

WRITTEN TESTS

Candidates for positions in grades GS–2 and GS–3 must pass a written test of abilities necessary to learn the duties of hydrologic aid positions.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

GS–2: Graduation from a full 4-year or senior high school, or possession of a General Educational Development High School Equivalency Certificate, may be substituted in full for the experience requirements at the GS–2 level. (High school education, or the General Educational Development High School Equivalency Certificate, may not be substituted for any part of the experience requirements for GS–3 and above.)

GS–3: One academic year of appropriate post-highschool education may be substituted for 1 year of experience, and meets in full the experience requirements at the GS–3 level. This education must include a course in areas such as: engineering, industrial technology, construction drafting, surveying, physical science, or mathematics.

GS–4: Two years of post-highschool academic study which included 18 or more semester hours in any combination of the subjects as listed above for GS–3, may be substituted for 2 years of experience. This meets in full the experience requirements at the GS–4 level.

GS–5: Successful completion of (*a*) a full 4-year course in a college or university leading to a bachelor's degree with major study in an appropriate field of science, engineering, construction, or industrial technology, or (*b*) 4 years of academic study which included at least 36 semester hours in any combination of the courses listed under GS–3 above, may be substituted for 3 years of experience and meets in full the experience requirements at the GS–5 level.

Appropriate education and training other than that outlined above, such as in manpower development programs or military training programs, will be granted credit on a month-for-month basis.

At any grade, post-highschool education or training which is acceptable under these standards may be substituted for part of the required experience on a pro rata basis.

BASIS OF RATING

Competitors for all positions will be rated on the quality and extent of experience, education, or training in relationship to the duties of the positions. Ranking will be made on the following basis:

For GS–1: An evaluation of the candidate's willingness to do simple and repetitive hydrologic aid work to learn simple proce-

dures; his dependability; and his ability to work safely.

For GS–2 and GS–3: Written test scores.

For GS–4 and above: An evaluation of experience, education and training in relationship to the duties of the position.

INSERVICE PLACEMENT ACTIONS

Written test

For inservice placement actions, the test is *not* required and, therefore, may *not* be used on a pass-fail basis. In addition, the test may *not* be used in evaluating or ranking eligible employees unless the test is approved for this purpose by the Civil Service Commission (see section A–3, appendix A, FPM Supplement 335–1).

Credit for high school education

For inservice placement actions, high school education may be credited in accordance with the "add-on" rule; that is, the employee need show only that he has acquired the additional qualifications required for the new position. Thus, a high school graduate appointed at GS–2 needs 6 months of experience to qualify for a grade GS–3 position.

SELECTIVE PLACEMENT

Some positions may require particular knowledges and skills. For such positions, consideration may be limited to those candidates whose records show that they have the required knowledges and skills.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for beginning level hydrologic aid positions should have the ability to use high school level mathematics; the ability to read and understand simple specifications, instructions, and procedures; and the ability to learn technician duties.

At the higher levels, hydrologic technicians need to know and to be able to apply, in increasing measure, practical knowledges, skills, and abilities, such as the following:

1. Ability to operate independently without immediate supervision;
2. Knowledge of the methods and techniques used in hydrologic investigations;
3. Ability to use and make field adjustments and repairs to equipment used in hydrologic investigations;
4. Ability to apply specified computations and procedures in the processing of hydrologic data;
5. Knowledge of hydrology and related fields sufficient to understand technical articles dealing with hydrology;
6. The ability to plan work;
7. The ability to analyze a situation and make a decision;
8. Ability to work with other members of the hydrologic team, and to deal effectively with the public.

In determining the extent to which candidates possess such knowledges, skills, and abilities, a job-element approach may be helpful. The Job Qualification System For Trades and Labor Occupations (Handbook X118C, May 1969) discusses the job element procedures and techniques to be used in obtaining information from applicants and measuring their qualifications. That material may be adapted for use for this occupation. Since many positions in this series are filled through inservice placement, the procedures and questions to be asked of candidates should be tailored to the requirements of the specific position and the labor market. The material on pages 21 through 29, "Rating For Inservice Placement," of the *Internal Qualification Guides for Trades and Labor Jobs*, will be especially helpful.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 4.

CHEMISTRY SERIES[1]

Chemist GS–5/15
Research Chemist GS–11/15

STATEMENT OF DUTIES

Chemists plan, direct, conduct, or carry out research and development or analysis and testing work that requires a full professional knowledge of the field of chemistry.

Chemists engaged in research and development are most commonly concerned with applied research projects aimed at creating new products or commodities or improving already existing ones. Some research chemists work on basic research projects and are primarily concerned with extending scientific knowledge without regard to the specific practical application of that new knowledge.

Many chemists are engaged in analysis and testing of substances to determine their composition, quality, purity, and other characteristics. The analysis and testing may be done in connection with a research and development program, or it may be done in connection with law enforcement, consumer protection, collection of revenue, or clinical diagnosis.

BASIC REQUIREMENTS FOR ALL GRADES

Candidates for positions involving basic or applied research must show successful completion of A.

Candidates for positions other than those involving basic or applied research must show successful completion of A *or* B.

A. A full 4-year course in an accredited college or university leading to a bachelor's (or higher) degree in one of the physical or life sciences, or engineering. This course of study must have included 30 semester hours in chemistry consisting of lectures, recitations and appropriate laboratory work. The chemistry course of study must have included quantitative analysis, inorganic, organic and physical chemistry. In addition, candidates must have had at least 6 semester hours of physics; and also mathematics through differential and integral calculus.

B. A combination of (1) 30 semester hours in chemistry in an accredited college or university consisting of lectures, recitations and appropriate laboratory work, including courses as described in A above and 6 semester hours of physics; and also mathematics through differential and integral calculus; and (2) additional appropriate education or experience. This combination of education and/or experience must provide technical and professional knowledge equivalent to that provided by the full 4-year college course described in A above.

The following are *examples* of the types of experience which may be accepted in combination with the required education to produce the equivalent of a 4-year college course:

1. Laboratory work, production or manufacturing involving technical chemistry duties, and similar types of work which provide a means of obtaining a professional knowledge of the theory and application of the principles of chemistry or closely related physical or natural sciences or engineering.
2. Experience in such fields as chemistry, physics or related aspects of engineering which has required the analysis of data and the preparation of reports.
3. Chemistry work of a level and quality similar to that described in the classification standard for the Chemistry Series at the GS–5 grade level.

All chemistry courses offered in fulfillment of the above requirements must have been acceptable for credit toward the completion of a standard 4-year professional curriculum leading to a bachelor's degree in chemistry at an accredited college or university. If not taught in the chemistry department of such college or university, they must be acceptable to that department toward meeting the requirements for a major in chemistry.

★[1] This standard has been approved by the Administrator of Veterans' Affairs for use within the Department of Medicine and Surgery of the Veterans' Administration under the provisions of Section 4105, Title 38, U.S.C.★

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, chemistry.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (*years*)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research position.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent level). c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

EXTRA CREDIT FOR CREATIVE OR OUTSTANDING RESEARCH

Except for candidates who qualify for a particular grade on the basis of meeting the graduate study requirements, candidates who have made a *creative research contribution* to the field of chemistry may be rated eligible for the next higher grade than that for which they qualify under standard education and experience requirements.

Such research must have been on a hitherto unsolved problem or problems. It must have been creative in that it produced a basic principle, concept, method, approach, or technique that not only solved the specific problem at hand, but also is directly applicable in the solution of other problems, and may open a new area of research.

On the one hand, such creative research characteristically involves the introduction of unorthodox assumptions, idealizations, approaches, and chemical, physical or mathematical concepts, techniques, or relationships which are not obvious, and which have not previously been perceived even by authorities in the field.

On the other hand, it may also characteristically involve the rejection of assumptions, idealizations, and chemical, physical, or mathematical concepts, techniques, or relationships hitherto held valid but which, for obscure reasons, do not hold when applied to the problems.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

SELECTIVE PLACEMENT

Because positions in the field of chemistry very often require specialized experience either within a branch of chemistry, or as applied to a specific class of commodity or substance, selective placement may be used for competitive appointments above GS–7.

IN-SERVICE PLACEMENT ACTIONS

Those candidates already employed in the Federal Government in technician kinds of chemistry positions, may, if otherwise eligible, be qualified for lateral grade reassignment upon completion of the course work required in this standard. They are not eligible for promotion before completing at least 1 full year of fully professional chemistry duties.

GUIDE FOR THE EVALUATION OF CANDIDATES

Candidates for positions at GS–5 and GS–7

Most appointments to grades GS–5 and GS–7 are made on a competitive basis. Evaluation of candidates is based largely upon an evaluation of their college career and achievement, any pre-professional employment they may have had, and any post-college employment.

In considering the quality of the candidate's preparation for professional chemistry work emphasis should be placed on those aspects of available data which distinguish the candidate's personal achievement. Evaluation should be based upon the number and description of courses taken, but must also take into account the achievement of the student. Part of this

achievement can be assessed by the pattern of courses taken and part by the grades achieved. Distinctions in quality level should be made on the basis of:

(a) the extent to which the courses in chemistry, physics, mathematics, and other related sciences contribute to the applicant's broad knowledge of chemistry and related sciences; and

(b) the grades achieved by the candidate. Consideration might well be given here both to the achievement in science courses, and the candidate's general standing in his class.

The American Chemical Society examines and approves chemistry departments of the various colleges and universities. All other things being equal, a candidate who studied in an ACS approved chemistry department and has been certified by the head of the Chemistry Department to the American Chemical Society as having successfully completed the minimum requirements suggested by the Society, probably will be well prepared to undertake junior professional work. If extra credit is to be allowed for such ACS approved studies, care should be taken to assure that ACS approval was in effect during the period of the applicant's study in the department. Care must also be taken in wording the rating schedule not to confuse ACS approval of the Chemistry Department with general accreditation of the college or university. Lists of ACS approved schools are issued annually by the American Chemical Society, and may be obtained from its headquarters office in Washington, D.C.

In considering courses in chemistry for compliance with basic educational requirements, it should be noted that applicants are not required to have taken specific courses entitled, for example, qualitative analysis, quantitative analysis, or inorganic chemistry. Rather, the total courses taken must give evidence that the applicant has covered the course content of these subjects. Course titles should be supplemented by catalog or other short descriptions of the course content.

In addition to information about the candidate's knowledge of chemistry, information is also needed on his general reasoning ability, ability to write reports and to handle the English language, and his ability to make practical application of his theoretical knowledge.

These latter skills and abilities are an integral part of the vast majority of chemistry positions, both operating and research. Chemists must be able to keep laboratory notes, write up the results of the tests and procedures they have performed, and draw professional conclusions from their findings. Evaluation of the candidate's abilities in this area should not be neglected in favor of consideration of chemistry knowledge alone. Qualifications inquiries should be used as necessary to acquire information about these aspects of candidates' preparation for chemistry positions.

Candidates for positions at GS–9 and above

For positions at these levels, evaluation of undergraduate college training is less important than consideration of graduate training and experience in professional chemistry work gained subsequent to fulfilling the minimum educational requirements for the Chemistry Series.

Evaluation of professional chemistry experience can best be made by chemists of high standing in their field who have had some training in examining qualifications and appraising the significance of scientific achievement.

Information regarding achievements, publications, appearance before professional organizations, as well as the nature and significance of the candidate's work experience must be considered in evaluating the candidates' qualifications. Care must be given to evaluating all of these factors as a unit. Undue weight should not be granted to the volume of publications, for example, if the other factors mentioned above do not point to a sufficiently high quality level of achievement. Consideration must also be given to the professional standing of the publication, its editorial policies and subject-matter field. In addition all published papers must be carefully and professionally assessed

in terms of their total contribution to knowledge about their field.

Particularly at the higher levels, chemistry positions often require highly specialized knowledge either of a branch of chemistry, or of a class of commodity, or a group of substances. This specialized knowledge requirement may be broad or deep and in many cases not widely found among chemists. The qualifications of applicants for such positions must be matched very carefully to the requirements for these positions.

Although different titles are used for operating chemist positions and research chemist positions, these title differences primarily reflect a difference in the factors used in classifying positions rather than a difference in the qualifications required for operating or research positions. It should not therefore be assumed that only research experience is qualifying for research assignments or that chemists with research backgrounds are not to be considered for operating kinds of positions.

Candidates without a degree

In evaluating the qualifications of candidates who are claiming eligibility on the basis of a combination of the required college training plus experience but no undergraduate degree, it is necessary to make a positive finding that the combination of college courses in chemistry, mathematics, and physics and appropriate work experience is the equivalent of full college training. In this connection the nature of the chemistry courses taken must be considered in order to assure that the candidate has had broad training in chemistry; in addition, the work experience offered must show evidence of ability to keep notes, write up reports, make practical application of theoretical knowledge, and draw professional conclusions from the work done. The essence of the qualifications determination is to assure that the applicant has the *equivalent* of a college degree.

COLLEGE TEACHING

College-level teaching of chemistry may be considered as professional experience in chemistry. In accepting and evaluating teaching experience, all specific qualification requirements pertaining to quality of experience, such as grade level, responsibility, scope, and knowledges required, are also to be applied to teaching experience. Teaching experience that is accompanied by a significant amount of research, direction of research, advising graduate students, investigative or similar work may be credited at full value in meeting a specific requirement of research, investigative, or similar experience.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

BASIS OF RATING

No written examination is required. Candidates will be rated, on a scale of 100, on the extent and quality of their experience and training. Such ratings will be based upon candidates statements in their applications and upon any additional information that may be secured by the Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 4, except there may be some positions involving analytical or theoretical chemistry which would be suitable for the blind. In addition, most positions require the ability to distinguish either basic or shades of colors.

Metallurgist GS–5/15

DESCRIPTION OF WORK

Metallurgists perform scientific and professional work which requires the ability to apply a professional knowledge of metallurgy and the relevant principles of chemistry, physics, mathematics, and engineering to extracting metals from their ores, refining them, preparing them for use, and studying their properties and behavior. Metallurgists perform research to investigate essential metal properties and structures; develop new or improved alloys; develop new or improved extracting, processing, and testing procedures; test and evaluate materials to determine properties, defects, or cause of service failure; operate production facilities or pilot-plants; advise on metals application; and write specifications and standards for materials and procedures.

BASIC REQUIREMENTS FOR ALL GRADES

Candidates for positions involving primarily research or similar advanced scientific work must show successful completion of A.

Candidates for positions other than those involving primarily research or similar advanced scientific work must show successful completion of A *or* B.

A. A full 4-year or longer course in an accredited college or university which satisfies the requirements for a bachelor's or higher degree including courses in metallurgical subjects consisting of lectures, recitations, and appropriate practical laboratory work totaling 20 semester hours; *or*

B. Courses in metallurgical subjects, in an accredited college or university, consisting of lectures, recitations, and appropriate practical laboratory work totaling 20 semester hours; plus additional appropriate experience or education which, when combined with the 20 semester hours in metallurgical subjects, will total 4 years of education and experience and give the applicant a technical and professional knowledge comparable to that which would have been acquired through the successful completion of the 4-year college course described in A.

In either A *or* B above, the 20 semester hours of metallurgical subjects must have been acceptable for credit toward the completion of a curriculum leading to a bachelor's or higher degree in metallurgy or metallurgical engineering at an accredited college or university.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in metallurgy, or a directly related discipline or field of science (e.g., chemistry, physics, materials science) or engineering.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been

at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	Minimum amount or level of education in appropriate subject-matter fields
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

QUALIFYING COURSE WORK

The 20 semester hours required in metallurgical subjects may be in curricula in metallurgy, metallurgical engineering, materials science, or any other closely related discipline. It is not the title of the course that is significant, but its content, which must deal predominantly with metals and their properties. Courses dealing primarily with nonmetallic materials in materials science or engineering would not be qualifying.

PROFESSIONAL EXPERIENCE

Professional experience is defined as experience in nonroutine, nontechnician phases of metallurgy, or closely related science or discipline. This experience must have demonstrated a professional body of knowledge of metallurgy such as would be acquired through completion of all the requirements for a bachelor's degree

in metallurgy, a professional ability to apply scientific methodology to metallurgical problems, and a continuing development of professional knowledge and ability.

CREATIVE OR OUTSTANDING RESEARCH AND DEVELOPMENT

Candidates who furnish positive evidence that they have performed highly creative or outstanding research and development, that either has led or can lead to major advances in a specific area of research, to a major advance in the discipline or field of science involved, or to major advances in science in general, may be rated on this basis for *highly demanding research and development positions* requiring similar abilities. Under these circumstances, the candidate can be rated eligible for the next higher grade above that for which he would normally be rated, *provided* he has not been rated eligible at this grade on the basis of meeting the graduate study requirements.

To receive this rating, the work must have been creative in the sense that it developed a basic principle, product, concept, method, approach, or technique, or provided a body of basic information that opened the way for major advances in the discipline or field of science involved, or to advances in science in general, by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of science in a major area.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

SELECTIVE PLACEMENT

Positions in this series may require specialized experience in extractive or physical metallurgy, in a particular area of work within these two fields (such as mineral dressing, electrometallurgy, metallography, mechanical metallurgy, powder metallurgy, etc.), or in a particular group of metals (such as ferrous, nonferrous, refractory, etc.). Selective placement, therefore, may be used accordingly.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for positions at GS–5 and GS–7

Most appointments to these grades are made from a register. Evaluation of candidates is based largely on their academic career, with consideration also being given to any employment experience they may have had. In meeting the basic education requirement, it should be noted that candidates are allowed credit for 20 semester hours in any metallurgical subjects, without specific courses being required. When evaluating a candidate's academic record, however, consideration should be given to the extent to which the courses successfully completed contribute to his basic knowledge of metallurgy and related fields. Extra credit may be given for excess courses in metallurgy or in closely related disciplines. The grades of the candidate in courses in these disciplines and his relative class standing may also be considered in his ranking.

In addition to evaluating the candidate's academic record, information should be obtained on such factors as his general reasoning ability, ability to make practical application of theoretical knowledge, ability to understand basic scientific literature pertaining to metallurgy, ability to write clear and accurate technical reports, ability to follow instructions, and ability to cooperate with others in accomplishing his work.

Candidates for positions at GS–9 and above

For positions at these levels, evaluation of undergraduate college training is less important than the consideration of graduate training and

professional work experience. The same factors that are used to evaluate the undergraduate academic record may also be used to evaluate the graduate record.

The evaluation of a candidate's work experience should consider its nature and significance, the extent to which it is related to work performed in metallurgy, and whether it has involved the performance of professional work of increasing difficulty and complexity and the assumption of more responsibility.

It should not be assumed that only research experience is qualifying for all research positions and only operation experience for all operating positions. It is necessary to look at the particular knowledges, skills, and abilities possessed by the candidate and to determine whether they meet the requirements of the position.

Candidates should also be evaluated for membership in and presentations before professional organizations, technical publications, participation in seminars and study groups, patents, awards, etc. Technical publications should be evaluated for their contribution to knowledge about metallurgy, rather than on their quantity alone.

In addition to possessing the personal characteristics listed above for candidates at the GS-5 and GS-7 levels, candidates for positions at GS-9 and above should be able to be evaluated for such traits as initiative, resourcefulness, ability to plan work, ability to supervise the work of others, etc.

Undue weight should not be given to any single factor in the evaluation of candidates. All factors should be used in determining their level of achievement.

COLLEGE TEACHING

College-level teaching of metallurgical or metallurgical engineering courses may be considered as professional experience in metallurgy. In accepting and evaluating teaching experience, all specific qualification requirements pertaining to quality of experience, such as grade level, responsibility, scope, and knowledges required, are also to be applied to teaching experience. Teaching experience that is accompanied by a significant amount of research, direction of research, advising graduate students, investigative or similar work may be credited at full value in meeting a specific requirement of research or similar experience.

BASIS OF RATING

No written examination is required. Candidates will be rated, on a scale of 100, on the extent and quality of their experience and training. Such ratings will be based upon statements of candidates in their applications, upon qualification inquiries, and upon any additional information that may be secured by the Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 4. In addition, most positions require the ability to distinguish either basic or shades of colors.

ASTRONOMY AND SPACE SCIENCE SERIES[1]

Astronomer GS–5/15
Astrophysicist GS–5/15
Radio Astronomer GS–5/15
Space Scientist GS–5/15

DESCRIPTION OF WORK

Astronomers and space scientists perform professional work involving research, observation and investigation of the dynamic and physical properties of celestial bodies, fields, and particles in the space environment. The objects of study include the sun, planets, interplanetary and interstellar media, stars, galaxies, quasars, pulsars, neutron stars and X-ray sources.

Astronomers and space scientists describe and interpret the physical processes of the solar system and the universe primarily through observation and study of the electromagnetic radiations (i.e., thermal, light, radio, infrared, ultraviolet, X-ray and gamma ray) of celestial bodies and space matter. They perform professional work such as the following:

(1) development of new astronomical and space science techniques and methods and refinement of existing ones;
(2) fundamental research on the constituents, properties, processes and life history of astronomical objects and space matter;
(3) continuing, long-term collection and analysis of data on astronomical and space phenomena.

BASIC REQUIREMENTS FOR ALL POSITIONS GS–5/15

For all grades, candidates must show successful completion of the requirements prescribed in either paragraph A or B:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree that included 30 semester hours in any combination of astronomy, physics, mathematics, space science, and electronics. The coursework must have included differential and integral calculus and 12 semester hours in astronomy and/or physics.

B. A combination of 4 years of experience and education that included a total of at least 30 semester hours in any combination of astronomy, space science, physics, mathematics, and electronics. The coursework must have included differential and integral calculus and 12 semester hours in astronomy and/or physics. This combination of education and experience must show that the candidate has acquired a mastery of fundamental physical and mathematical sciences comparable in scope and intensity to that which would have been acquired through the successful completion of a 4-year college or university curriculum as in paragraph A.

For research or similar work of a creative or advanced scientific nature, consideration may be restricted to those candidates who have successfully completed the college curriculum specified in A above.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education)or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, astronomy or space science.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the fol-

[1] This standard supersedes the standard for this series which was issued in December 1968.

lowing amounts of professional experience are required for grades GS–7 and above:

Grade	Minimum amount of professional experience in appropriate subject-matter fields (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade	Minimum amount or level of education in appropriate subject-matter fields
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

CREATIVE OR OUTSTANDING RESEARCH

The provisions for extra credit for creative research experience as stated in section II, part II of this handbook apply to positions covered by this standard.

ASTRONOMY AND SPACE SCIENCE SERIES

SELECTIVE PLACEMENT

While astronomers and space scientists apply an understanding of the principles of a variety of disciplines, some positions emphasize a particular discipline or combination of disciplines which are applied more intensively than others. Consideration for individual positions may be restricted to those candidates whose backgrounds indicate that they possess the specialized knowledges and skills.

Knowledges and skills required in positions will vary depending on the nature of the program, the subjects involved, and the techniques used. For example, positions involved in positional astronomy require knowledges and skills in spherical astronomy, celestial mechanics, astrometry and mathematical statistics. Positions using radio astronomy techniques require knowledges and skills in theoretical astronomy, radio physics and electronic engineering. Some positions involved in research to determine solar causes of geophysical disturbances require knowledges of astrophysics, solar physics, and mathematical physical theory in the fields of spectroscopy, quantum theory and statistical mechanics.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

AMENDED EDUCATIONAL REQUIREMENT

The provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook apply to positions covered by this standard.

BASIS OF RATING

No written examination is required. Candidates will be rated, on a scale of 100, on the extent and quality of their experience and training. Such ratings will be based upon candidates' statements in their applications and upon additional information that may be secured by the Civil Service Commission.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for positions at the GS–5 and GS–7 levels

Evaluation of candidates for positions at GS–5 and GS–7 is based largely on their academic career, with consideration also being given to any employment experience they may have had. Undergraduate education in physics and mathematics is critical to successful performance in the various specialty fields encompassed in astronomy and space science.

In meeting the basic education requirement, it should be noted that a wide variety of specialized fields of study are acceptable. When evaluating a candidate's academic record, however, consideration should be given to the extent to which the courses contributed to his basic knowledge of the particular underlying scientific theories, principles and techniques involved in a given field, e.g., astrometry, solar physics, radio astronomy, stellar evolution or cosmic ray astronomy. Extra credit may be given for excess courses in the particular specialty and upper division astronomy, space science, physics, and mathematics. The grades of candidates in courses related to the theory and techniques of the specialty and the candidate's relative class standing may also be considered in ranking.

In evaluating the candidate's experience, consideration should be given to such factors as ability to make practical application of theoretical knowledge, ability to understand basic scientific literature, and ability to write clear and accurate reports.

Candidates for positions at GS–9 and above

For positions at these levels, evaluation of undergraduate college training is less important than the consideration of graduate training and professional work experience. The same factors that are used to evaluate the undergraduate academic record also may be used to evaluate the graduate record.

This occupation requires a high degree of competence in the rigorous methods of scientific inquiry and mathematical analysis. To maintain and develop such competence, education beyond that specfied in the minimum educational requirement is especially valuable for research and similar work. Evidence of further study and personal development should be considered in determining quality of experience and ranking under promotion plans.

As a supplement to other evidence, in evaluating candidates, consideration should be given to active membership in and presentations before professional organizations, technical publications, participation in seminars, awards, etc. In evaluating technical publications the number is not as important as the significance of their contribution to knowledge advancing the theories and methods of astronomy and space science.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 4.

METEOROLOGY SERIES[1]

METEOROLOGIST GS–5/15

DESCRIPTION OF WORK

Meteorologists perform professional and scientific work primarily concerned with the phenomena and conditions of the earth's atmosphere and their effects on human, social, and economic activities. The work requires full professional knowledge of meteorological methods, techniques, and theory and the ability to apply this knowledge in the solution of practical and theoretical problems.

Work performed by meteorologists includes weather analysis, forecasting, air and water pollution advisories, climatology, radar and satellite surveillance and analysis, computer prepared prognostic guidance, and meteorological research.

BASIC REQUIREMENTS FOR ALL GRADES

Candidates must show successful completion of A, B, or C below:

A. A full course of study leading to a bachelor's degree in an accredited college or university which has included or been supplemented by 20 semester hours in meteorology including six semester hours in weather analysis and forecasting, and six semester hours in dynamic meteorology; and, in addition, differential and integral calculus and six semester hours in college physics.

B. At least 20 semester hours in meteorology at an accredited college or university which has included six semester hours in weather analysis and forecasting, and six semester hours in dynamic meteorology; and, in addition, differential and integral calculus and six semester hours in college physics; plus additional appropriate education or technical experience which when combined with the education prescribed above will total four years of education or education and experience. This preprofessional background must be of such quality that it provides a body of knowledge and abilities comparable to that normally acquired through the successful completion of the full course of study described in paragraph A above.

C. Candidates who are enrolled or are accepted for enrollment in a graduate curriculum leading to a master's degree in meteorology and who have successfully completed the requirements for a bachelor's degree in physics, mathematics, engineering, or related physical or earth sciences, may be rated eligible at GS–5 only.

Candidates for meteorological research positions must have successfully completed the college curriculum, including the required course work in meteorology, physics and mathematics, specified in paragraph A of the Basic Requirements For All Grades.

NOTE: Successfully completed college level study in nonaccredited schools may be accepted under this standard as outlined in the provisions of Education In Nonaccredited Schools in section III, part II of this handbook.

GS–5. The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, meteorology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

[1] Cancels and supersedes the standard for this series that was issued in December 1968.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least six months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or one year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least one year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 research positions	Completion of all requirements for a master's or an equivalent degree for which at least two full academic years of graduate study are required when— a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are typically and preferably acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 research positions	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are typically and preferably acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may normally be considered to be equal to one full academic year of graduate education.)

4. *Alternate requirements*

a. Superior academic achievement at the baccalaureate level or one year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and one year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of Part II, Instructions to Users, of this handbook must be met.

b. Candidates who (1) successfully complete the requirements for a bachelor's degree in any field of physical, atmospheric or earth science, engineering, or mathematics, (2) following graduation, enter military service as a cadet or commissioned officer, (3) complete 3 years of military experience and education in meteorology (this may include basic military training as part of the total planned professional development program), and (4) satisfy the educational requirements in paragraph A of the basic requirements for all positions in the Meteorology Series, may be rated eligible at GS–11, provided that at least 1 year of the professional military meteorological experience is equivalent to the GS–9 grade level.

CREATIVE OR OUTSTANDING RESEARCH

The provisions for extra credit for creative research experience as stated in section II, part II, Instructions to Users, of this handbook apply to positions covered by this standard.

SUPERVISORY POSITIONS

All candidates for supervisory meteorologist positions must also meet the requirements set forth in the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook. This standard requires that the candidates demonstrate (1) that they have the personal attributes that are important to success in supervisory or managerial jobs, and (2) that they possess, or have the potential to develop, the supervisory or managerial abilities needed for the level of position to be filled.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

BASIS OF RATING

No written examination is required. Candidates will be rated, on a scale of 100, on the extent and quality of their experience and training. Such ratings will be based upon candidates' statements in their applications and upon additional information that may be secured by the Civil Service Commission.

SELECTIVE PLACEMENT

Many positions in this series require highly specialized knowledges in one or more specific scientific areas or fields of meteorology, or the ability to apply highly specialized scientific techniques to problems peculiar to a specific type of work. For such positions, consideration may be restricted to eligibles meeting such specialized requirements.

GUIDE FOR THE EVALUATION OF CANDIDATES

The evaluation of each candidate's experience and education for both competitive and inservice placements should be centered upon those background elements which reflect the candidate's ability to perform the duties of the position under consideration. An evaluation of the nature, quality, and recency of the candidate's education tends to be the most relevant indicator of potential success at the lower grade levels (GS–5/9). Education, particularly undergraduate education, becomes less significant above these levels (in most instances for lack of recency or pertinence). Then the evaluation should be concentrated on the quality and extent of the candidate's experience background.

Evaluation of education

In most instances, an evaluation of the quality and extent of the candidate's academic preparation for a career in meteorology is accomplished by a review of the official personnel folder, resumés, transcripts, Personal Qualifications Statements or other written documents. Additional information about the candidate's educational background may be gathered from personal interviews, qualifications inquiries, and,

of course, by reviewing any scientific papers the candidate may have published.

A. *Undergraduate education*

Evaluations of the quality and extent of the candidates' undergraduate education should be concentrated on the following areas:

1. *Extent of preparation in meteorology.*—Considerable variation exists within the academic community in terms of the course work requirements for a bachelor's degree in meteorology as well as the number and kind of courses available as optional or recommended electives. Distinctions in quality levels can be established to reflect the extent to which the candidate's undergraduate preparation in meteorology exceeds the established knowledge requirements of the position to be filled.
2. *Extent of preparation in related scientific disciplines.*—Additional preparation in the physical, earth, atmospheric and natural sciences and mathematics is an important requirement for successful performance in meteorology. Courses in computer science, engineering, geophysics, hydrology, oceanography, geology and geography all make their contributions to the candidate's overall ability to perform successfully in the broad field of meteorology as well as in specialized areas within this discipline. Distinctions in quality levels can be established to reflect the extent to which the candidate's undergraduate education in the sciences in general or in the disciplines related to meteorology in particular meet the requirements of the position to be filled or contribute to the candidate's broad knowledge of meteorology.
3. *Academic achievements.*—Consideration should be given to the candidate's achievement (grades) in: (*a*) meteorology courses; (*b*) related science courses; and (*c*) his class or area of concentration (relative standing in class or major).

B. *Graduate education*

The nature, quality and extent of graduate education successfully completed is an important aspect in the evaluation of candidates for all positions and may be especially significant in evaluating candidates for research positions. Distinctions in quality levels should be made on the same basis as for undergraduate education, i.e., preparation in meteorology and related scientific disciplines and academic achievement. Appropriate credit should also be granted whenever significant research was performed as part of the study or when, as is often the case in graduate programs, the candidate performs college level teaching in meteorology.

Evaluation of experience

The evaluation of the candidate's experience should be concentrated on those knowledges, skills and abilities which reflect the candidate's ability to successfully perform the duties of the position to be filled. An assessment of personal attributes and characteristics as demonstrated by past job performance which are useful or vital should also be included in the evaluation. The following elements should be considered in the evaluation process:

A. *Type, level, recency and progression of experience.*—Reviews of candidate's experience should center on those aspects of the candidate's education and experience which have special significance in the job environment or are particularly relevant to the critical performance factors of the position to be filled. In this review, attention should be given to the type, level, progression and recency of the experience shown by the candidate. Because of the rapidly changing nature of meteorology particular emphasis should be placed on the recency of the candidate's experience.

Experience which included many varied meteorological duties and responsibilities is generally the more valuable type of experience because of its breadth. However, some positions may be engaged in work in a very

specialized area. Consideration, in these instances, should be given to the depth and intensity of experience in that field or area of concentration.

Collateral experience, including valuable experience in excess of requirements, and experience in closely related sciences or the fundamental physical sciences, may be given appropriate weight.

B. *Scientific accomplishments.*—Included are the candidate's demonstrated knowledge of meteorology and related sciences, his scientific interest as shown by self-development activities, his stature in the profession, and his accomplishments (considering opportunities for such).

Judgments by coworkers or colleagues are highly important in appraising scientific accomplishments. Evidence used to appraise accomplishments includes publications, participation in professional societies, leadership activities in the field of endeavor, honorary and other recognition, contributions to knowledge, and the like. Publications should be carefully appraised in terms of their total contribution to knowledge about the field, rather than judged by volume. Citations by others as an authority, however, may serve as a partial index of the value of published work. The extent of professional recognition may be judged by such things as invitations to present papers before professional groups (international, national, regional, local); activities in professional societies; use as a resource by other scientists; and the like.

Meteorologists, as they advance in level of responsibility, are expected to show signs of vigorous professional development as a method of keeping abreast of the field. Lack of evidence of this development legitimately may be considered as detracting from the overall quality level assigned.

Accomplishments should be appraised in consideration of the opportunities afforded by past assignments and the level of these assignments. Negative accomplishments which disapprove theories may be given as much weight as positive accomplishments, as appropriate.

C. *Personal attributes, abilities, and characteristics.*—Following are some of the abilities and personal characteristics most important in meteorologist positions. They may be given weight as appropriate for the position for which being considered:

1. Originality and creativity.
2. Reasoning ability.
3. Ability to prepare reports and other written technical material.
4. Resourcefulness.
5. Planning ability.
6. Ability to work with others on a team.
7. Ability to work effectively in stress situations.
8. Ability to communicate effectively through written and oral communications.

The evaluation should take into account the obvious and realistic differences between various assignment situations (e.g., research and nonresearch) by giving appropriate weight to the extent to which work demands of the assignment are met. For example, in some cases, the evaluation would recognize a requirement to perform climatological research or develop new methods for producing computer generated forecast material and consider the extent to which the candidate is interested in and equipped to perform such scientific inquiries. Particular care should be taken in filling positions that require employees to live and work in isolated or physically demanding environments for extended periods of time.

Methods of evaluation

Useful methods for the evaluation of candidates for nonsupervisory meteorologist positions are described in FPM Chapter 335–1, Evaluation of Employees for Promotion and Internal Placement.

Supervisory Meteorologist Positions

The Qualification Analysis and Assessment of Potential Form included in the qualification standard for Supervisory Positions in General Schedule Occupations should be used for supervisory meteorologist positions supplemented with the following additional items, as appropriate:

(1) *Knowledge of and Competence in the Management of Meteorological Functions*

The candidate is knowledgeable and competent in the management of meteorological functions pertaining to:

(a) Specialized area of field of meteorology (specify);
(b) (Specify) functional or program area;
(c) Synoptic guidance materials/long-range forecasting;
(d) Mid-range forecasting;
(e) Adaptive forecasting;
(f) Staff support programs;
(g) Other (specify).

(2) *Knowledge of and Competence in Administration*

The candidate is knowledgeable and competent in the following administrative areas:

(a) Planning, programing and budgeting (PPB);
(b) Financial management;
(c) Personnel management;
(d) Physical resource or property management;
(e) Data processing;
(f) Communications;
(g) Other (specify).

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 5. In addition, applicants must possess emotional and mental stability.

METEOROLOGICAL TECHNICIAN SERIES[1]

Meteorological Aid, GS–1/3

Meteorological Technician, GS–4/11

DESCRIPTION OF WORK

Meteorological technicians perform specialized technical work primarily concerned with the analysis of weather elements or the prediction of their effects upon the atmosphere, the earth's surface and human activities. Typical duties include the acquisition of meteorological data by direct observation, electronic systems, satellites, balloons, rockets, radar and other sensory and telemetry devices; charting, computing and verifying observed data; establishing, maintaining and improving data acquisition systems, methods and techniques; disseminating regular and emergency informational reports to the general public and special user groups, i.e., aviation, marine, agricultural, military, commercial and scientific interests. Meteorological technician positions do not require professional training equivalent in type and scope to that of a meteorology curriculum.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Experience requirements

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-1	0	0	0
GS-2	½	0	½
GS-3	1	0	1
GS-4	1½	½	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5
GS-8 and above	2	4	6

General experience.—This is experience in scientific, engineering, technical or other fields which has provided familiarity with meteorological technician work or knowledges which would be useful in this occupation; e.g., observing and recording data, using scientific instruments, computing data, making measurements, reading charts or graphs, etc.

Specialized experience.—This is technical experience in the field of meteorology which has provided the skills, abilities and knowledges required to perform meteorological technician work. This experience must show knowledges and abilities such as the following as appropriate to the grade level and the kind of work to be performed:

(1) knowledge of meteorological methods, techniques, and practices;

(2) ability to measure meteorological phenomena with scientific equipment and instrumentation;

(3) ability to observe and record atmospheric characteristics, i.e., temperature, air movement, visibility, pressure, air density, cloud types, etc.;

(4) ability to decode, plot, and systematically record data related to the physical characteristics of the atmosphere, i.e., charts, diagrams, cross sections, etc.;

(5) ability to collect, analyze, interpret, adjust and verify atmospheric or other meteorological data to confirm and improve its accuracy and efficacy;

(6) ability to establish, maintain and improve work relationships with employees, operating personnel, management officials and, as appropriate, special user groups and the general public; and

(7) ability to communicate effectively, orally and in writing by preparing effective written material such as technical reports and forecasts and making oral presentations of technical information to the general public or to special user groups.

Quality and level of experience

For grade GS–1, no experience, training or education is required. Candidates must be interested in and willing to learn meteorological aid work and show evidence of likelihood of success in these assignments.

For grades GS–2 and GS–3, the general experience requirements are purposely broad in

[1] This standard supersedes the standard for this series that was issued in September 1966.

coverage and do not include any specialized knowledge of meteorological technician practices.

For grade GS–4, the 6 months of required specialized experience must have been comparable in difficulty and responsibility to the GS–3 grade level.

For grade GS–5, at least 1 year of the required experience must have been comparable in difficulty and responsibility to the GS–4 grade level. At least 6 months of this experience at the GS–4 level must have been specialized experience.

For grades GS–6 through GS–11, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must demonstrate that he possesses the ability to perform the duties of the position.

Supervisory positions

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook should be used in conjunction with this standard.

WRITTEN TESTS

Candidates for positions at grades GS–2 and GS–3 must pass a written test of abilities necessary to learn and perform the duties of meteorological aid positions. The written test should be waived for inservice placement actions.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

GS–2: Graduation from a full 4-year or senior high school, or possession of a General Educational Development High School Equivalency Certificate, may be substituted in full for the experience requirements at the GS–2 level. (High school education, or the General Educational Development High School Equivalency Certificate, may not be substituted for any part of the experience requirements for GS–3 and above.)

GS–3: One academic year of appropriate post-high school education that included at least one course in meteorology, mathematics, engineering, or physical science may be substituted for 1 year of experience, and meets in full the experience requirements at the GS–3 level.

GS–4: Two years of post-high school academic study, which included at least 12 semester hours in any combination of the subjects as listed above for GS–3, may be substituted for 2 years of experience including ½ year of specialized experience. This meets in full the experience requirements at the GS–4 level.

GS–5: Successful completion of 4 years of academic study which included at least 24 semester hours in any combination of the courses listed under GS–3 above, may be substituted for 3 years of experience, including 1 year of specialized experience. This meets in full the experience requirements at the GS–5 level.

Appropriate education and training other than that outlined above, such as in manpower development programs or military training programs, will be granted credit on a month-for-month basis.

Post-high school education or training which is acceptable under these standards may be substituted for part of the required experience on a pro rata basis. However, education may not be substituted for the specialized experience required for GS–6 and above.

Required skills, abilities and knowledges

Candidates for positions at grades GS–4 and GS–5 must have (*a*) knowledge of meteorological methods, techniques, and practices, or (*b*) the required fundamental knowledge of mathematics and physics. Only those candidates who demonstrate that they possess these knowledges

and the ability to acquire quickly an acceptable level of performance will be considered eligible.

BASIS OF RATING

Competitors for all positions will be rated on the quality and extent of experience, education, or training in relationship to the duties of the positions. Ranking will be made on the following basis:

For GS–1: An evaluation of the candidate's willingness to do simple procedures; his dependability; and his ability to work safely.

For GS–2 and GS–3: Written test scores.

For GS–4 and above: An evaluation of the candidate's experience, education, and training in relationship to the duties of the position to be filled. Rating will be based on statements in the application form and any additional evidence received by the Commission.

SELECTIVE PLACEMENT

For positions that require particular knowledges and skills, consideration may be restricted to those candidates whose background indicates that they possess the required knowledges and skills.

INSERVICE PLACEMENT ACTIONS

Credit for high school education

For inservice placement actions, high school education may be credited in accordance with the "add-on" rule, that is, the employee need show only that he has acquired the additional qualifications required for the new position. Thus, a high school graduate appointed at GS–2 needs 6 months of experience to qualify for a grade GS–3 position.

Waiving directly applicable specialized experience requirement at GS–4 and GS–5

For inservice placement actions only, the requirement for specialized experience for positions at grades GS–4 and GS–5 may be waived for lateral reassignment of employees in related technician occupations provided:

1. The candidate has had experience which has provided knowledge of the work of the position for which he is being considered; and
2. A review of the candidate's experience and performance indicates that he possesses the necessary skills and abilities, and evidences definite potential for successful performance of the work.

GUIDE FOR EVALUATION OF CANDIDATES

Meteorological Aid

Candidates for entrance level positions as meteorological aids should have, as a minimum, the following abilities:

1. Ability to use or learn high school level mathematics.
2. Ability to read and understand simple written instructions and procedures.
3. Ability to comprehend and respond to simple oral directions and instructions.
4. Ability to work as a member of a team.
5. Ability to learn meteorological aid duties.

Meteorological Technician

At the higher grade levels, the evaluation of candidate's experience, education, and training in both competitive and inservice placement actions should be concentrated upon those factors which provide the best indication of the candidate's ability to perform successfully the duties of the position to be filled. The relative importance of these factors will, of course, vary from position to position in terms of grade level, functional specialization, location of the position, etc. These variations should be considered and given appropriate emphasis in the ranking process. The skills, abilities and knowledges in the specialized experience paragraph of this standard should be considered as factors in the evaluation of each candidate's background. Consideration should also be given to the following additional items as appropriate:

—Ability to work effectively in stress situations;

—Ability to communicate effectively through written and oral presentations;
—Ability to plan and organize day-to-day activities;
—Ability to select, interpret, and apply guideline and precedent materials;
—Ability to adapt to changing work situations;
—Ability to prepare reports and other written technical material;
—Ability to work independently;
—Ability to set up and operate meteorological equipment and instrumentation (specify);
—Ability to respond positively to new ideas or suggestions;
—Ability to establish, maintain, and improve interpersonal relationships with individuals and groups having diverse backgrounds and interests.

Methods for evaluation

Useful methods for the evaluation of candidates for meteorological technician positions are described in FPM Chapter 335–1, Evaluation of Employees for Promotion and Internal Placement. Several procedures including job element rating, are suggested in this material, one or more of which may be appropriate for evaluating candidates for these positions.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 9; in addition, candidates must possess emotional and mental stability.

Geologist GS-5/15

DESCRIPTION OF WORK

Geologists perform professional work involving geologic mapping of surficial deposits, bedrock, subsurface phenomena, and mineral deposits; making and recording geological field observations and collecting samples for laboratory analyses; devising field and laboratory techniques and methods, both observational and experimental, for use in the study of geologic phenomena, processes, and changes; making special studies of the characteristics, occurrence and distribution of mineral deposits, glaciers, and other geologic phenomena; preparing, identifying, and studying samples of minerals, sediments, rocks, fossils, ores, and natural liquids and gases; compiling and interpreting field, laboratory, and published data for use by others or for publication; investigating the influences and interrelationships of climate, topography, plants and animals, and water bodies on specific geologic processes and environments; and preparing professional scientific and economic reports for publication or for use in planning, design and construction activities. The difficulty of the work and the degree of responsibility will vary and be commensurate with the grade of the position.

BASIC REQUIREMENTS FOR ALL GRADES

For all grades, applicants must have successfully completed either A or B below:

A. A full 4-year or longer curriculum in an accredited college or university leading to a bachelor's degree. The courses must have included 30 semester hours in geology, including geomorphology, structural geology, mineralogy, petrology, paleontology, and stratigraphy; and 20 semester hours in any combination of mathematics, physics, chemistry, biological science, engineering, and pertinent related sciences such as geophysics, meteorology, hydrology, and oceanography.

B. Courses in geology totaling 30 semester hours, and courses in related sciences totaling 20 semester hours, as specified in A above, in an accredited college or university, *plus* additional appropriate work experience or education which will total 4 years of combined education and experience comparable in type, scope and thoroughness to that acquired through successful completion of a 4-year college curriculum. The work experience acceptable in combination with education must have been such as to demonstrate that the applicant can perform professional geological work at the initial entrance level in this occupation.

The following is an example of the type of experience which may be accepted in combination with the required education to produce the equivalent of a 4-year college course:

> Field or laboratory work of a technical geology nature, which has provided a means of obtaining a professional knowledge of the theory and application of the principles of geology and closely related sciences, e.g., geophysics, geochemistry or hydrology. Such work generally must have involved making close observations, taking samples, handling various types of instruments and equipment, assembling geologic data from source materials, and reporting findings orally and in writing.

Work which provided experience in only one phase of technical geology work, e.g., collecting samples, is unacceptable as a means of acquiring the required professional knowledge of theory and application of the principles of geology.

All courses specified in A or B must have been acceptable for credit toward completion of a standard 4-year curriculum leading to a bachelor's degree at an accredited college or university. Courses in geology specified in A or B above may have been taken under other titles (e.g., physical geology instead of geomorphology), or in combinations (e.g., stratigraphy and sedimentation, mineralogy and petrology). Courses taken under other titles are acceptable for meeting the requirements if it is evident that they cover the appropriate course content of the required subjects. Where there is any

question applicants should supplement course titles by catalog or other short descriptions of course content.

For positions engaged in basic or applied research, applicants must have successfully completed the full college curriculum as prescribed in paragraph A

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, geology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level.

c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

EXTRA CREDIT FOR CREATIVE INVESTIGATION OR RESEARCH CONTRIBUTION

Applicants who have undertaken special investigations or have done professional research and meet the criterion described below may be rated eligible for the next higher grade than that for which they would otherwise qualify on the basis of the standard requirements paragraphs. However, an applicant who achieves a higher grade on the basis of the graduate study provision cannot become eligible for a still higher grade based on a creative research contribution.

To receive such credit, an applicant must have achieved the distinction of making a creative investigation or research contribution to the field of geology. Such investigation or research must have been on a hitherto unsolved problem or problems. The contribution must have been creative in that it must have produced a basic principle, concept, method, approach, or technique that not only solves the specific problem at hand, but also is directly applicable in the solution of other problems and may open a new area of investigation or research.

On the one hand, such creative investigation or research characteristically involves the introduction of unorthodox assumptions, idealizations, approaches, scientific concepts, techniques, or relationships which are not obvious, and which have not previously been perceived even by authorities in the field. On the other hand, it may also characteristically involve the rejection of assumptions, idealizations, approaches, scientific concepts, techniques, or relationships hitherto held valid but which, for some new or basic reason, do not hold when applied to the problem.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

BASIS OF RATING

No written test is required. Applicants will be rated on a scale of 100. The applicant's education, training and experience described on the application form will be carefully evaluated, as well as any further corroborative and supplementary information that may be obtained from schools, past employers or others. Confidential inquiries, including contacts with superiors or associates may be made concerning the applicant's education and experience record. The required amount of minimal education and experience will not in itself be accepted as proof of qualification. The total education, experience, and training must be of such scope, character and quality as to demonstrate clearly that the applicant is able to perform the duties of the position under consideration in the field of geology.

DEFINITION OF PROFESSIONAL GEOLOGICAL EXPERIENCE

Professional geological experience is defined as experience in nonroutine phases of geologic activities which require for their successful performance training represented by the completion of either a full 4-year accredited college curriculum leading to a bachelor's degree in geology or the equivalent. Professional experience may consist of the performance of any of the recognized geologic functions, provided in each case it is based on and requires essentially a thorough knowledge and consistent application of the basic principles of related sciences, to the solution of theoretical or practical geologic problems.

In some situations, professional scientific experience which is not of itself clearly professional geological experience may be accepted in part as professional geological experience. Such experience *must have been preceded* by appropriate education in geology or by professional geological experience and must contribute directly and significantly to the applicant's professional geological competence. Examples include some positions in geophysics, mining engineering, soils science, physical oceanography, hydrology, climatology, biology, analytic or experimental chemistry, metallurgy, and comparable fields where the normal duties or results of investigations have been extended to the solution of geologic problems by the applicant. Ordinary functions of positions such as seismic computer, petroleum or mining engineer, mine superintendent, or metallurgist generally are not considered professional geological experience. To receive credit for geological experience obtained in positions that are not definitely full-time professional geological positions, the applicant is responsible for indicating clearly the actual time or percentage of time devoted to geologic duties within such positions, and for giving adequate descriptions of the geologic functions.

Part-time or unpaid experience and experience gained as an independent geological consultant also will be accepted, evaluated, and credited on the basis of the aggregate or total time actually spent in appropriate geologic activities of specific assignments.

SELECTIVE PLACEMENT

For positions that require knowledge and experience of a special type, consideration may be restricted to eligibles who possess the particular qualifications required to perform the scientific survey or research duties of such positions.

PHYSICAL REQUIREMENTS

Applicants must be physically able to perform efficiently the duties of the position, which are described elsewhere in this standard. Good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. The duties of most positions require the ability to distinguish either basic or shades of colors; however, there may be a few positions which do not require this ability, and applicants with defective color vision will receive consideration. For most positions, ability to hear the conversational voice, with or without a hearing aid, is required; however, there may be a few laboratory positions which would be suitable for the deaf. For most positions, applicants with an amputation of arm, hand, leg, or foot will not qualify for appointment; however, there may be a few positions suitable for persons with such handicaps. Applicants must possess emotional and mental stability. Any physical condition which would cause the applicant to be a hazard to himself or to others will disqualify for appointment.

GUIDE FOR EVALUATION OF QUALIFICATIONS

Evaluation of education

A. *Undergraduate Education*

The nature and quality of the basic education is of most value in evaluating candidates at the entrance levels (GS–5 and GS–7) and to some extent at GS–9. Undergraduate training is of less significance at succeedingly higher levels as compared with experience.

Three aspects are important for consideration:

1. *The extent of preparation in geology.*—Courses in geology required for graduation or available as electives vary greatly from institution to institution in number, variety, scope and quality. Distinctions in quality level can be made, over and above the courses meeting the basic requirements, on the extent to which additional courses in geology contribute to the broad or specialized knowledge required for the position for which being considered.

2. *The extent of preparation in related sciences.*—Adequate preparation in physics, chemistry and mathematics is a requirement in most, but not all, colleges and universities. It is required for geology work in the Federal Government. Courses in sciences related to geology, such as geophysics, hydrology, meteorology, oceanography, and biology, contribute invaluably to the ability of the candidate to perform in the general field of geology as well as in specialized areas. Distinctions in quality levels may be made to reflect the nature and quality of preparation in basic and related sciences which contribute to the candidate's broad knowledge of geology.

3. *Academic achievements.*—Consideration might well be given to achievement in science courses, the candidate's general standing in his class, and other academic achievements. These are of most use where other measures (e.g., evaluation of work experience) are not available.

B. *Graduate Education*

The nature and quality of graduate education is a significant factor in evaluating any candidate, but is especially important in evaluating candidates for research positions.

Generally speaking, graduate education in related fields (e.g., geophysics, hydrology, biology) may be accepted as meeting educational requirements for GS–7 and above if preceded by an undergraduate degree in geology, provided the total education and experience show ability to do geologic work of the required level. This must be reasonably interpreted in relation to the requirements of the job. For example, advanced training in botany and paleobotany is especially appropriate for positions concerned with the study of fossil plant remains. Graduate work in engineering science would be appropriate for engineering geology positions.

Distinctions in quality level, as appropriate to the kinds of positions for which being rated, may be made on the same basis as for undergraduate education, i.e., extent of preparation in geology, extent of preparation in related sciences, and academic achievements. Distinctions may also be made on the extent to which significant research was performed as a part of the graduate study, and on the quality and pertinence of such research.

Evaluation of experience

Evaluations of experience, whether for competitive or noncompetitive purposes, can best be made by geologists of high standing in their field who have had some training in examining qualifications and appraising the significance of scientific achievement.

For scientific positions the evaluation of experience necessarily and logically includes appraisal of personal attributes and characteristics as demonstrated in performance on the job. This includes the degree and scope of scientific knowledge possessed by the applicant which can be brought to bear upon scientific problems in the position for which considered.

The following may be considered in the evaluation of experience:

A. *Nature, level, recency, and progressiveness of experience.*—All other things being equal, the best experience is that which shows normal progression in duties and responsibilities at least to a level demonstrating the applicant's ability to perform successfully at the level for which being considered. Stale experience or experience which has not pro-

gressed steadily in difficulty and responsibility can be considered as a detracting factor.

Experience which has comprised many varied geological duties involving the use of knowledge in a number of fields of geology or related sciences is generally the more valuable experience because of its broadness. However, for positions involving work in a narrow specialized field consideration may be given as appropriate to the depth and intensity of experience in that field.

Collateral experience, including valuable geological experience in excess of requirements, and experience in closely related sciences or the fundamental physical sciences, may be given appropriate additional weight.

Teaching experience in geology may be considered as professional experience in geology, if accompanied by a significant amount of research, direction of research, advising students of graduate level, investigative and consultative service on geological problems, or similar experience. All specific qualification requirements pertaining to quality of experience, such as grade level, responsibility, scope, and knowledges required, are also to be applied to teaching experience.

B. *Scientific accomplishments.*—Considered here are the candidate's demonstrated knowledge of geology and related sciences, his scientific interest as shown by self-development activities, his stature in the geological profession, and his accomplishments (considering opportunities for such).

Peer judgments are highly important in appraising scientific accomplishments. Evidence used to appraise accomplishments includes publications, participation in geological and other professional societies, leadership activities in the field of endeavor, honorary and other recognition, contributions to geological knowledge, and the like. Publications should be carefully appraised in terms of their total contribution to knowledge about the field, rather than judged by volume. Citations by others as an authority, however, may serve as a partial index of the value of published work. The extent of professional recognition may be judged by such things as invitations to present papers before professional groups (international, national, regional, local); activities in professional societies; use as a resource by other geologists; and the like.

Geologists, as they advance in level of responsibility, are expected to show signs of vigorous professional development as a method of keeping abreast of the field. Lack of evidence of this development legitimately may be considered as detracting from the overall quality level assigned.

Accomplishments should be appraised in consideration of the opportunities afforded by past assignments and the level of these assignments. Negative accomplishments which disprove theories may be given as much weight as positive accomplishments, as appropriate.

C. *Personal attributes, abilities, and characteristics.*—Following are some of the abilities and personal characteristics most important in geologist positions. They may be given weight as appropriate for the position for which being considered:

1. Originality and creativity
2. Reasoning ability
3. Ability to write geologic reports
4. Resourcefulness
5. Planning ability

Methods of evaluation

A useful procedure for evaluating candidates for geology positions, either competitively or noncompetitively, is described under 4 on page 28, appendix A to part II, of this handbook. Under this procedure all of a candidate's experience and education is assigned to a single quality level, considering progressiveness, highest level of attainment, and pertinence. Consideration should also be given to additional and collateral education and experience and to scientific accomplishments in assigning the quality level. Additional points may then be added for the degree to which the personal

characteristics necessary to successful performance are present.

Certain information in addition to that provided in application forms is needed for evaluation of qualifications of candidates for geologist positions. This includes evaluations by supervisors and others in a position to provide information on scientific accomplishments and personal characteristics, as well as the quality of performance on the job.

Supplemental applications may be used as necessary to obtain from the candidate the necessary information regarding self-development activities, publications, etc.

→*Supervisory positions*

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

Oceanographer GS-5/15

DESCRIPTION OF WORK

Oceanographers perform professional work concerned with the study of tides, sea ice, currents, waves, sediments, and various other ocean phenomena in terms of their characteristics and behavior as seen in temperatures, densities, circulation, motion, sound propagation, transparency, etc., including the interaction among ocean bottom, sea, and atmosphere, as well as animal and plant life, as these affect or are affected by the phenomena under study. Some oceanographers plan, coordinate and conduct scientific surveys and study ocean phenomena at sea and on land, analyzing and interpreting the data derived from the ocean and its surroundings. Other oceanographers plan, organize and conduct basic and applied research on ocean phenomena at sea and on land.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements

Candidates for these positions must have successfully completed A or B below:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's degree with major study of at least 24 semester hours in oceanography or a related discipline such as physics, meteorology, geophysics, mathematics, chemistry, engineernig, geology, or biology plus 20 semester hours in any combination of oceanography, physics, geophysics, chemistry, mathematics, meteorology, and engineering sciences.

B. Major study at least 24 semester hours in oceanography, or a related discipline such as physics, meteorology, geophysics, mathematics, chemistry, engineering, geology, or biology plus 20 semester hours in any combination of oceanography, physics, geophysics, chemistry, mathematics, meteorology, and engineering sciences, combined with additional education and/or pertinent work experience in the field of oceanography totaling 4 years of education and experience. This combination of education and experience must have provided the candidate with professional knowledge and ability comparable to that required under paragraph A.

In either A or B above: candidates who qualify on the basis of major study in biology or geology must show at least 6 semester hours in the major directly concerned with marine science, or in oceanography; candidates who qualify on the basis of other physical sciences or engineering, must show differential and integral calculus and at least 6 semester hours in physics.

Candidates for research positions must meet the requirements prescribed in paragraph A.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, oceanography.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade	*Minimum amount or level of education in appropriate subject-matter field*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

EXTRA CREDIT FOR CREATIVE INVESTIGATION OR RESEARCH CONTRIBUTION

Applicants who have undertaken special investigations or have done professional research and meet the criterion described below may be rated eligible for the next higher grade than that for which they would otherwise qualify on the basis of the standard requirements paragraphs. However, an applicant who achieves a higher grade on the basis of meeting the graduate study requirements cannot become eligible for a still higher grade based on this criterion.

To receive such credit, an applicant must have achieved the distinction of making a creative investigation or research contribution to the field of oceanography. Such investigation or research must have been on a hitherto unsolved problem or problems. The contribution must have been creative in that it must have produced a basic principle, concept, method, approach, or technique that not only solves the specific problem at hand, but also is directly applicable in the solution of other problems and may open a new area of investigation or research.

On the one hand, such creative investigation or research characteristically involves the introduction of unorthodox assumptions, idealizations, approaches, scientific concepts, techniques, or relationships which are not obvious, and which have not previously been perceived even by authorities in the field. On the other hand, it may also characteristically involve the rejection of assumptions, idealizations, approaches, scientific concepts, techniques, or relationships hitherto held valid but which, for some new or basic reason, do not hold when applied to the problem.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

BASIS OF RATING

No written test is required. Applicants will be rated on a scale of 100. The applicant's education, training and experience described on the application form will be carefully evaluated, as well as any further corroborative and supplementary information that may be obtained from schools, past employers or others. Confidential inquiries, including contacts with superiors or associates may be made concerning the applicant's education and experience record. The required amount of minimal education and experience will not in itself be accepted as proof of qualification. The total education, experience, and training must be of such scope, character and quality as to demonstrate clearly that the applicant is able to perform the duties of the position under consideration in the field of oceanography.

SELECTIVE PLACEMENT

For positions that require knowledges and experience of a special type, consideration may be restricted to eligibles who possess the particular qualifications required to perform the scientific survey or research duties of such positions.

GUIDE FOR EVALUATION OF QUALIFICATIONS

Although there are minimum length-of-experience requirements for each grade level, the far more important consideration is the quality level of scientific training and experience. There is always a problem of equating experience with education in the rating process, and this is especially troublesome in an emerging science. The introductory criteria in part II of this handbook and FPM Supplement 337–76 provide valuable information to assist in solving this problem.

In interpreting paragraph B of the minimum education requirements, qualifying experience at the GS–5 entrance level may include something less than professional experience, just as undergraduate courses or pre-degree courses are considered qualifying for the entrance level of a professional occupation. The concept of entry-level qualification for oceanographer positions is that the combination of experience in school and on the job gives the applicant the opportunity to demonstrate capability for future development beyond the pre-professional level.

The evaluation should take into account the obvious and realistic differences between various assignment situations (e.g., research and nonresearch) by giving appropriate weight to the extent to which work demands of the assignment are met. For example, in some cases the rating would need to recognize the requirement to go to sea on ocean survey work as a factor, and might consider the extent to which the applicant is interested in such scientific investigation with its limitations and compensations as well as any history of motion sickness or social maladjustment, which could render him incapable of participating as a member of an ocean survey team. Careful vouchering and inquiry should be utilized particularly for positions requiring that employees live and work aboard ships for any length of time, especially to establish ability to perform the work and get along with others.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 9. In addition, applicants must be able to distinguish shades of colors, and must possess emotional and mental stability.

Aeronautical Information Specialist GS–5/15
Marine Information Specialist GS–5/15

Description of work

Personnel in this occupation collect, evaluate, select, and prepare aeronautical or marine information for dissemination in official publications concerning navigation and related air or marine operations with emphasis on safety of operations in these fields. This vital information is used by those concerned with civil or military air traffic control operations, with navigation of ships or aircraft, or with planning air or marine operations. Specific information on domestic or international airport or seaport facilities, on aids to navigation (e.g., electronic aids, etc.), and navigational aids (e.g., charts, instruments, etc.), and on the wide variety of data required for safe sea or air navigation and related operations is collected from many sources such as foreign attachés, travelers, ships' masters, mariners, aviators, intelligence and other reports, foreign and domestic publications, and other sources. Practical and operational evaluation of this information is essential because such information is used under normal and emergency conditions by a wide range of users, from individuals in small private craft to officers directing high-speed aircraft or atomic powered vessels.

Qualifications required

Applicants may qualify on the basis of experience, education, or appropriate combinations of experience and education as specified in detail below.

At the GS–9 level and above, applicants must show at least 1 year of appropriate specialized experience in work involved in the preparation of information for navigational and related operational publications at a level of difficulty comparable to the preceding full grade in the series.

Experience requirements

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–5	3	0	3
GS–7	4	0	4
GS–9	4	1	5
GS–11 and above	4	2	6

General experience

There are several types of general experience that demonstrate an applicant's ability to perform the various types of work required to produce information in the field of aeronautical or marine operations.

General experience in one option, i.e., aeronautical or marine, qualifies for the general experience required in the other option; however, specialized experience must be in the field to which it is being applied. An excess of general experience may not be applied to the specialized experience required but an excess of specialized experience may be applied to the general experience required. The following are *some examples* of general experience that provide background for work in these fields:

General Marine Experience

1. Responsible navigating and sea experience as a licensed Merchant Marine Officer on United States ocean-going vessels (over 1,000 gross tons), or as a commissioned officer on an ocean-going vessel of the United States Government with assigned duties as a navigator.

2. Experience in preparing books or courses on marine navigational information, experience as an instructor on navigational subjects, or other related experience in the field of marine navigational safety or operations.

General Aeronautical Experience

1. Civilian or military flying experience as a captain, pilot, co-pilot, navigator or navigation instructor. A private, commercial or military pilot's license or rating is required to gain credit

for flying experience. No credit is given for unlicensed student pilot experience. Pilot or navigator experience, without ground school training, may receive credit of 2 weeks for the first 35 hours of flying and 2 weeks credit for each additional 50 hours of flying up to a maximum of 6 months. Pilot or navigator experience with ground school training (including some dead reckoning, use of flight computer, photo-analyses training, etc.) may receive credit of 3 weeks for each 50 hours of flying up to a maximum of 6 months. Pilot, navigator or instrument instructor experience which has averaged a minimum of 200 hours of flying time *each* year may be credited on a year-for-year basis up to a maximum of 4 years of general experience. 600–800 hours of flying time qualifies for a GS–5; over 800 hours qualify for GS–7 based on flight experience alone; no additional credit is given for more than 800 hours. This experience must have included all phases of air navigation, such as use of radio and communication facilities, knowledge of airways and flight regulations, experience in instrument trainers, use of all types of air navigation charts and publications, etc.

2. Civilian or military air traffic control experience, involving the application of procedures and knowledge of such operations including shift-type or supervisory responsibilities at a density station, center, or tower.

3. Experience as an instructor in navigation (including celestial) or in piloting procedures and techniques; at an accredited college or university or U.S. training school; or other appropriate experience related to aeronautical operations that would provide a general background to work of this occupation.

Specialized experience

Responsible and progressive civilian or military experience involving the acquisition, collection, selection, analysis, evaluation and preparation of reliable marine or aeronautical information on navigation and related operations for dissemination by various methods, including publications concerned with or related to the field of navigation.

(a) The following are examples of responsible and progressive specialized experience in the field of *aeronautical* information and related operations with emphasis on navigational safety:

(1) Analysis and evaluation of new and proposed methods of presenting aeronautical data in connection with flight requirements.

(2) Study, research, evaluation, selection and compilation of data for use in aeronautical operations and for intelligence purposes by promulgation of this data in official publications and charts essential for the safe and efficient conduct of flight operations.

(3) Study, evaluation, selection and compilation of information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard for dissemination on a timely basis to personnel concerned with flight operations and planning.

(4) Review and evaluation of aircraft instrument department, enroute and approach procedures for use under instrument flight conditions.

(b) The following are examples of responsible and progressive specialized experience in the field of *marine* information and related operations, with emphasis on navigational safety:

(1) Study and analysis of nautical data, marine navigational reports, ships logs, etc., in connection with a definite program to promote marine navigational safety.

(2) Evaluating reports and information affecting marine navigational safety, and promulgating warnings and information to ships at sea.

(3) Writing and editing marine navigational information for publication in official and/or authoritative books, manuals, articles, etc.

NAVIGATIONAL INFORMATION SERIES

Education

Successfully completed study above the high school level at appropriate Federal, state, or private institutions may be substituted at the rate of 1 year of education and/or training for 9 months of general experience up to a maximum of 3 years. Education or training may not be substituted for specialized experience.

1. Graduation from either the United States Naval, Air Force, Coast Guard or Merchant Marine academies, or from one of the several state maritime academies may be substituted up to a maximum of 4 years of full-time education for 3 years of general experience.

2. Study at an accredited college or university may be substituted at the rate of 1 year of full-time study for 9 months of general experience up to a maximum of 4 years of education for 3 years of general experience provided that the study included at least 6 semester hours per year in any one or 10 semester hours per year in any combination, of the following subjects: navigation, mathematics, physics, astronomy, geography, meteorology, engineering, cartography, or another subject related to aeronautical or marine navigation and operations.

3. Successful completion of a course of instruction in flying or air navigation at one of the U.S. Government (Air Force, Navy, etc.) aeronautical or aviation training schools may be credited on the same basis as above, i.e., at the rate of 1 year of full-time training for 9 months of general experience.

4. Any combination of the criteria of paragraphs 1, 2, or 3 above.

Supervisory → positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard. ←

Basis of rating

No written test is required. Applicants will be rated on a scale of 100. The ratings will be based on the applicant's description of his experience, training and education in the Standard Form 171 and on any additional evidence secured by the U.S. Civil Service Commission. An evaluation of the extent and quality of the applicant's experience and education significant to the duties of the position will be made. The required amount of total and specialized experience will not be accepted solely as proof of qualification, but the total experience and training must be of such scope and quality as to demonstrate clearly that the applicant is able to perform the duties of the position under consideration.

Selective certification

For positions that require experience of a special type (within the aeronautical or marine specialization) certification may be restricted to eligibles who possess the pertinent experience and knowledge required to perform the duties of the positions covered in this occupation.

Physical requirements

See Part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

Cartographer, GS–5/15

Supervisory Cartographer, GS–5/15

DESCRIPTION OF WORK

Cartographers perform professional work concerned with the science and technology of making maps, charts, or related products that portray spatial properties or characteristics of the surface of the earth or extraterrestrial bodies. The maps, charts, or related products may embrace a wide range of variables as well as more abstract representations of spatial data in noneuclidian space and may include: (a) profiles, three dimensional views of models, globes, orthophotos, and varied imagery having position control established systematically according to given cartographic standards of accuracy; and (b) temporary images such as those displayed on a cathode ray tube, mental maps or cognitive configurations, animated map sequences, anaglyphic map models, and cartographic data structures. This work requires: (1) professional knowledge of cartography, including the mathematical, geographic, and scientific bases for design, evaluation, and construction of maps and charts, accurate geographic, and navigational information; and (2) the ability to apply scientific methodology to cartographic problems.

BASIC REQUIREMENTS FOR ALL GRADES

Candidates for positions at all grades must show successful completion of the requirements of paragraph A or paragraph B below, Candidates for positions involving primarily research or advanced scientific work must show successful completion of paragraph A. Candidates for positions other than those involving primarily research or similar advanced scientific work must show successful completion of either paragraph A or paragraph B.

A. A full course of study leading to a bachelor's or higher degree in an accredited college or university. The study must include or be supplemented by 30 semester hours of the course work described below in cartography and/or directly related science, and related mathematics, as follows:

BASIC REQUIREMENTS FOR ALL GRADES

Professional course work area	Minimum semester hours	Some examples of qualifying course work (See "Evaluation of education for more information.)
Cartography and/or closely related science and technology	24	—cartography —astronomy —geodesy —photogrammetry —physical & geological oceanography —computer science* —land surveying —geophysics —physical geography —remote sensing —college mathematics not credited below-limited to 9 semester hours here.**
Related college mathematics** and statistics	**6	—college level algebra —college level trigonometry —calculus —any nonbusiness mathematics or statistics course requiring one of the above or equivalent as a prerequisite
Total	30	

*See the description of acceptable course work in computer science and other computer areas, page 13.

**College mathematics and statistics credited under basic requirements may not exceed 15 semester hours.

B. At least 30 semester hours of course work of the type, quality, and diversity described above in paragraph A in an accredited college or university plus additional appropriate experience and/or education which, when combined with the specific course work prescribed above, will total four years of education or education and experience. The candidates' personal background must be of such quality that it provides a body of professional knowledge, skills, and abilities comparable to that normally acquired through successful completion of the full course of study described in paragraph A above.

GS–5—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, cartography.

The experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which that candidate is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

The provisions of 5 C.F.R. 300, subpart F, concerning the rate at which employees may be promoted, must be complied with, in addition to the other requirements in this standard.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (Years)*
GS–7	1
GS–9	2
GS–11	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty compared to that of the next lower level, or 1 year comparable to the second lower grade, in the Federal Service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal Service.

2. *Education*

In addition to the basic requirement, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (Years)*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; or Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph.D. or equivalent); or
GS–11 Research positions	Completion of all requirements for master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily research, creative or advanced scientific analytic work. b. The knowledge required for the work is typically and preferably acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions	Completion of all requirements for a doctoral degree (Ph.D. or equivalent) for appointment to such positions as meet the following criteria:

a. The position involves primarily research creative or advanced scientific analytic work.
b. The knowledge required for the work is typically and preferably acquired through graduate study at the doctoral (Ph. D. or equivalent) level.
c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combination of Professional Experience and Graduate Education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. The material included in Part II of Handbook X–118 under "Common Pattern of Grade Eligibility Based on Graduate Education" is applicable to this occupation.

Alternate Requirements

a. Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. Combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of Part II, Instructions to Users, of Handbook X–118 must be met.

b. For positions at GS–7 only, candidates who have completed the requirements which satisfy the provisions of paragraph A or B of the basic requirements and who have prior experience as a cartographic aid or technician equivalent to grade GS–5 or higher may have such experience credited for GS–7 on a month-for-month basis up to a maximum of 12 months.

ADDITIONAL CREDIT FOR CREATIVE OR OUTSTANDING RESEARCH

Where candidates show positive evidence that they have performed highly creative or outstanding research, which has led, or can lead to a major advance in a specific area of research, or to a major advance in the field of cartography, they may be rated on this basis for highly demanding research positions which require similar abilities in order to perform the work. Candidates who meet this criterion may be rated eligible for the next higher grade above that for which they would normally be rated, provided they have not been rated at this higher grade on the basis of meeting the graduate study requirement. To receive this rating, the work must have been creative in the sense that it developed a basic principle, concept, method, or approach (or provided a body of basic information) which opened the way for major advances in cartography.

AMENDED EDUCATIONAL REQUIREMENTS

This standard is subject to the provisions of the "Amended Educational Requirements for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

DEFINITION OF PROFESSIONAL CARTOGRAPHIC EXPERIENCE

For the purpose of meeting the requirement of "professional cartographic experience" specified for grades GS–7 and above, professional cartographic experience is defined as experience in nonroutine phases of cartographic work which requires, and is characterized by; (1) professional ability to apply scientific methodology to cartographic problems, (2) a professional body of knowledge of cartography, and (3) vigorous and continuing development of professional knowledge and ability.

Professional ability to apply scientific methodology is defined as the ability to comprehend, interpret, develop, and apply fundamental

scientific concepts and relationships; to reason logically from a broad body of scientific principles and facts; to exercise judgment, initiative, originality, and perspective in the solution of technical or scientific problems; to adapt techniques and methods of related disciplines; and to apply skill in mathematical techniques, such as would be acquired through intensive scientific training equivalent to completion of an accredited course leading to a bachelor's degree in engineering, mathematics, cartography, or other appropriate fields of science (e.g., geology, physics, or geodesy) in an accredited college or university.

"Professional body of knowledge of cartography" is defined as a body of knowledge which is equivalent in type and scope to that acquired through completion of all the requirements for a bachelor's degree in cartography at an accredited college or university which would typically embrace the concepts underlying the interpretation of maps, charts, and images; the concept of the map, chart, or related products as a communication system; and the concept of the generalized map production system model. For example:

1. The concepts underlying the interpretation of maps, charts, and images generally include knowledge of: geodetic reference models used for mapping and control reworks; coordinate reference systems and map projections; spatial properties both natural environmental and human occupance system; encoding models or systems of symbolization; and geometric and spatial characteristics of remote sensing imagery.

2. The concept of the map, chart, or related product serving as a communication system generally includes knowledge of how the communication system functions, knowledge of the perceptual abilities of map readers, and an understanding of the need for and methods of incorporating the preferences and limitations of map readers in the map of chart design process.

3. The concept of the generalized map production system model typically includes knowledge of most of the following:

—The principles, methods, techniques, instruments, and equipment employed in field, photogrammetric, or hydrographic survey, including data analysis.

—The characteristics, potentialities, and limitations of manual and automated cartographic compilation instruments, techniques, and methods as related to optimum economical combinations of such factors as standardization, validity, precision, reliability, utility, and cost.

—The principles, methods, and techniques of evaluating source materials.

—The mathematical and statistical principles and methods involved in computation, adjustment and processing of cartographic data; compensation for human and mechanical error; and validating measurements.

—The principles, methods, and techniques of map and chart design (including symbolization, generalization. levels of measurement) and representation of geographical and navigational information.

—Methods and techniques of developing, maintaining, and using cartographic data structures.

—The mathematical characteristics and relationships of systems of coordinates, grids, control networks, and map projections.

Vigorous and continuing development of professional knowledge and ability is defined as an action program involving three of four of the following as appropriate to the level of the position and other circumstances: (1) developing new approaches, methods, or techniques for the solution of technical problems in cartography; (2) formal or informal training and guidance on the job by specialists or more mature professionals; (3) college-level (preferably graduate-level) academic study; (4) participation in seminars, conferences, and technical committees of professional societies and other organizations; (5) review and study of the technical literature of cartography

and related fields; and (6) publication of professional papers. Professional work in cartography, like other fields of science and technology, is marked by continuing personal effort to keep abreast of the advancing and changing discipline.

Note: Because the title "Cartographer" is sometimes used outside the Federal Service to describe nonprofessional work, there may be questions as to whether experience acquired as a "cartographer" is really professional in nature. This is particularly significant in the cases of candidates without any college-level education in science. It is therefore desirable to scrutinize in detail any experience claimed as a cartographer to ascertain if it is indeed "professional cartographic experience" as defined herein.

GUIDE FOR EVALUATION OF CANDIDATES IN RELATION TO JOB REQUIREMENTS

Evaluation of Education

A. *Undergraduate education*

The nature and quality of the basic education is of most value in evaluating candidates at the entrance levels (GS–5 and GS–7) and to some extent at GS–9. Undergraduate training is of less significance at succeedingly higher levels as compared with experience. Three aspects of the candidates' undergraduate preparation are important for consideration:

1. *The extent of preparation in cartography and/or related sciences and technology and mathematics.* Courses in cartography, mathematics, and related sciences and technology that are required for graduation or available as electives vary greatly from institution to institution in number, variety, scope, and quality. Distinctions in quality level can be made on the extent to which courses contribute to the broad or specialized knowledge required for the position for which the candidate is being considered.

In meeting the basic 30 semester hours requirements, it should be noted that candidates are allowed to credit course work in three relatively broad subject areas (i.e., cartography, related mathematics, and closely related science and technology) without specific courses being required. When evaluating a candidate's academic record, however, consideration should be given to the extent to which courses successfully completed contributed to the candidate's basic knowledge of cartography.

Until quite recently, professionals who had individual backgrounds in different disciplines (e.g., geography, engineering, mathematics, geodesy) and technicians who had satisfied prescribed educational courses comprised, by far, the vast majority of candidates for cartographer positions. Now, however, a growing number of educational institutions are offering a 4-year curriculum to prepare the student for a career in cartography.

More curricula exist under other titles or names or as options in such departments as geography, geodesy or geodetic science, or civil engineering. *Consequently, courses acceptable as preparation for a career in cartography may be taken in various departments.*

Illustrative of acceptable courses are the following: (This listing while extensive is not all inclusive.)

Cartography—Introductory courses which include coordinate systems and map projections, compilation and generalization, photogrammetric compilation, generalized cartographic communication model, numerical mapping, landform mapping, hydrographic mapping, generalized cartographic production model, map design, topography for maps, map construction and reproduction.

—Courses concerned with *thematic cartography* which include conceptual structure of thematic cartography; models of cartographic communication; translation of information needs into mapping requirements; encoding models, levels of measurement, and symbol construction; map design and planning, generalization, error measures, mapping numerical data, map construction techniques, and nonpress proofing methods.

—Courses concerned with *map design* which include models of cartographic communication; significance of design to communication efficiency; graphic elements and their role in the physical and perceptual structure of the map image; concepts and principles of design with particular emphasis on figure-ground relationships, color and lettering; and interrelationships between reproduction processes and design techniques.

Closely Related sciences and technology—Introductory courses which include fundamentals of *aerial photography*, *photogrammetric optics*, and *photographic processes;* mathematics of vertical and tilted photographs; stereoscopy and parallax; planning and executing a photogrammetric project; triangulation methods; orthophotomaps; photomaps; and oblique and terrestrial photography.

—Courses which include basic *photogrammetric theory and practices*, stereoscopic plotting instruments; graphical and computational methods for adjusting strips of aerotriangulation; and methods of least squares, statistics, and transformations applied to photogrammetry.

—Courses concerned with *aerial photographic interpretation* which include photographic image interpretation concepts; aerial camera systems, films, and filters; geometry of aerial photographs; stereoscopy and parallax; photographic mensuration techniques; interpretation of surface form, surficial materials, drainage features, and vegetation; interpretation of agricultural patterns, mining activities, and energy resources and facilities; applications of photointerpretation in land use inventory; and aerial photographic interpretation as a data source for understanding and managing the human population environment system or comparable purpose.

—Courses concerned with *remotely sensed image interpretation* which include application of remote sensing to earth resource studies; physical characteristics of electromagnetic radiation, multispectral sensing, and photographic and digital image analysis; satellite system; cartographic treatment of remotely sensed data; relationship of remote sensing to geographic information systems; and remote sensing as a cost-effective resource management tool.

—Courses in *land use* which include location theory of economic activity, determinants of land use, taxonomy of land use, spatial patterns of land use, and management tools for understanding or directing land use changes.

—Courses in *remote sensing* which include the study of multispectral scanner systems, sources of radiation and spectral reflectance characteristics of earth surface features; methods for multitemporal and multisource data analysis including classifier design; geometric and radimetric correction; and data transformation.

—Courses in *image processing/pattern* recognition which include image transforms, enhancement, restoration, and coding; image segmentation by edgy detection and by region analysis; texture and shape analysis; and statistical pattern recognition techniques.

—Courses concerned with *computer-assisted cartography* which include generalized models of map production in a computer environment, geometry of base map systems, cartographic data structures, data input systems, digital cartographic files, verification and correction procedures, file update procedures, retrieval and manipulation of data, applications programs for spatial data display.

—Courses concerned with *computer science* and such relevant computer areas as Data Base Management, System Analysis, Computer Programming, Computer Operations, and Computer Languages are extremely imporant to the cartographic sciences today and are expected to assume an increasingly important role in the future.

—Such courses are creditable if they are geared directly to cartographic, geodetic, or geographic sciences or if they can be shown to be valid requirements of the position[s] to be filled.

—Courses concerned with *geographic information systems* which include concepts of geographic information system development and use; major subsystems; geo-coding concepts and applications; peripheral equipment and control software for graphic input; physical and logical organization of large spatial data files; algorithms and available software for spatial data handling; relationship of such systems to computer-assisted cartographic system; and application of such systems to analytical and cartographic display.

—Courses concerned with *physics* which include the study of matter and energy and their interactions in fields such as optics.

—Courses in *surveying* such as: (1) plane surveying which includes reference plans and surfaces, distances and angular measurements, traverse computations, and horizontal and vertical curves, or (2) control surveying which includes horizontal and vertical control surveys, error theory, precise traverse, triangulation, trilateration, adjustment theory, and least squares adjustment.

—Courses in *geophysics* to include the study of the gravitational geomagnetic fields of the earth; the theoretical and perturbated motions of the earth; the atmosphere surrounding the earth; the dynamics of the oceans; the geology of the earth; surface and the nature and variations of the earth's ionosphere.

—Courses concerned with *physical* and *geological oceanography* with emphasis on electromechanical, optical and acoustical measurements of tide, current, and depth parameters dynamics and morphology of seabed for sensor data interpretation; elements of ocean wave theory circulation; meteorology as related to dynamics of ocean and atmosphere; and navigation.

—Courses in *astronomy* with mapping or surveying application.

—Courses concerned with *forestry* with emphasis on geology, plane surveying, forest mapping, photogrammetry, and aerial photographic interpretation.

—Courses in *geodesy* which include principles and formulas basic to theoretical and applied geodesy; determination of geodetic reference surfaces by geometric, gravimetric, and celestial methods; and horizontal and vertical control surveys.

—Courses in *geology*, *physical geography*, or *natural environmental systems* which include analysis of development, nature and distribution of landforms, soils, vegetation, and waters of the continents; and spatial analysis of interrelationships among physical elements of the landscape; and geomorphology.

Related mathematics—Courses in *calculus* which include real numbers, coordinate systems, function, limits and continuity, differentiation and applications, trigonometric functions, indefinite integration and applications, and fundamental theorem of integral calculus. Courses in or experience in teaching elementary, business, or shop mathematics are not acceptable.

—*College level algebra* and *trigonometry*.

—Courses in *statistics* or *theory of probability* which includes basic concepts in statistical methods including probability, theoretical and empirical distributions, estimation, tests of hypotheses, linear regression and correlation; and analysis of variance procedures.

Academic courses conducted by a Federal agency or a nonaccredited institution that are determined to be fully equivalent to courses in an accredited college or university also may be accepted. (See Introduction to Handbook X–118, part II, section III.)

Academic achievements — Consideration should be given to the candidate's achievement in academic courses, the candidate's general standing in class, and other forms of academic achievements such as membership in honor societies, professional groups, awards, etc. These are of most use where other measures (e.g., evaluation of work experience) are not available.

B. *Graduate Education*

The nature and quality of graduate education can be a significant factor in evaluating any candidate for a career in cartography, but it is especially important in evaluating candidates for research positions.

Distinctions in quality level, as appropriate for the kinds of positions for which the candidate is being rated, may be made on the same basis as for undergraduate education, i.e., extent of preparation in cartography, extent of preparation in related sciences, and academic achievements. Distinctions may also be made on the extent to which significant research was performed as a part of the graduate study, and on the quality and pertinence of such research.

Evaluation of experience

Candidates whose experience in cartography has been in the Federal Service may have gained this experience by working in one or more occupational series. Occupations in which they may have gained experience that demonstrates a thorough knowledge of cartographic principles and practices are Civil Engineering, GS–810, Cartography, GS–1370, Geodesy, GS–1372, and Land Surveying, GS–1373.

For scientific positions, the evaluation of experience includes the degree and scope of scientific knowledge possessed by the applicant which can be brought to bear upon scientific problems in the position for which considered.

The following may be considered in the evaluation of experience:

A. *Nature, level, and progression of experience*—All things being equal, the best experience is that which shows a regular progression in duties and responsibilities at least to a level demonstrating the applicant's ability to perform successfully at the level for which being considered. Experience which has not progressed steadily in difficulty, breadth, or responsibility can be given less weight in rating.
Experience which has comprised many varied cartography duties involving the use of knowledge in a number of fields of related sciences is generally the more valuable experience because of its breadth. However, for positions involving work in a specialized area, consideration may be given, as appropriate, to the depth and intensity of experience in that area.
Collateral experience, including valuable experience in excess of requirements, and experience in closely related sciences, may be given appropriate additional weight.

B. *Scientific accomplishments*—Considered here are the candidate's demonstrated knowledge of cartography and related sciences, scientific interests as shown by self-development activities, stature in the profession, and accomplishments (considering opportunities for such).

Judgments made by cartographic professionals are highly important in appraising scientific accomplishments. Evidence of professional accomplishments includes publications, participation in professional societies, leadership activities in the field of endeavor, honorary and other types of recognition, contributions to knowledge, and other similar activities. Publications should be carefully appraised in terms of their total contribution to knowledge about the field, rather than judged by volume. Citations by others as an authority, however, may serve as a partial index of the value of published work. The extent of professional recognition may be judged by such things as invitations

to present papers before professional groups (international, national, regional, local); activities in professional societies; use as a resource by other scientists; and the like.

Cartographers, as they advance in level of responsibility, are expected to show signs of vigorous professional development as a method of keeping abreast of the field. Lack of evidence of this development legitimately may be considered as detracting from the overall quality level assigned.

Accomplishments should be appraised in consideration of the opportunities afforded by past assignments and the level of these assignments. Negative accomplishments which disprove theories may be given as much weight as positive accomplishments, as appropriate.

The evaluation should take into account the obvious and realistic differences between various assignment situations (e.g., research and nonresearch) by giving appropriate weight to the extent to which work demands of the assignment are met. For example, in some cases, the evaluation would need to recognize the requirement to do survey work (for verification or other purposes) as a factor, and might consider any history of disability which would render a candidate incapable of participating as a member of a survey team. Careful inquiry should be made particularly for positions requiring that employees live and work in a demanding environment for a protracted length of time.

Methods of Evaluation

Other useful methods of appraising candidates' qualifications and promotion potential may be found in FPM Supplement 335–1, "Evaluation of Employees for Promotion and Internal Placement."

SELECTIVE AND QUALITY RANKING FACTORS

The Cartography Series covers a broad and varied spectrum of positions some of which may require specialized knowledges and skills or a particular combination of knowledges and skills which are essential to individual positions but cannot routinely be expected among candidates who meet the broad requirements common to the occupation at the grade involved. For example, a position may require knowledge of calculus and more advanced mathematics; while some candidates can be expected to possess this knowledge, others may have qualified on the basis of different or lesser coursework.

Where such requirements are necessary to do the work of the position to be filled, or (as in entry level, developmental, or trainee positions) are necessary to do the work of designated target jobs, agencies are authorized and encouraged to develop selective factors describing the requirements and to use selective certification to fill such positions. This approach is not appropriate when the particular knowledges and skills are to be developed through agency sponsored training or education after employment. When used, documentation should be maintained, such as job analysis data showing the basis for the requirement.

Agencies may also develop quality ranking factors to assist in determining which candidates are best qualified.

These do not affect the basic qualification requirements, but must be directly related to the duties and responsibilities of the position to be filled since they will be used to determine which of the eligible candidates are to be included in the final group from which supervisors and managers will make final selections.

Quality ranking factors must be shown to distinguish and predict various levels of performance, particularly superior performance. An example of a quality ranking factor would be knowledge of advanced cartographic design methods, techniques, trends, and prototype systems in a position with responsibility for the development of specifications and design criteria for new and unique cartographic products.

Additional guidance concerning the evaluation and documentation of selective and quality ranking factors is provided in FPM Chapter 332, Subchapter 4 and Appendix B.

INSERVICE PLACEMENT ACTIONS

For purposes of applying qualification standards in inservice placement actions, persons serving in a position in the same series as the position to be filled are generally considered to be "grandfathers" and are not required to requalify for the position currently occupied. Nevertheless, in order for a candidate to be qualified for the next higher grade it is necessary that the candidate clearly show the ability to perform *professional* cartographic work. *Mere occupancy of a professional cartographer position for a period of a year does not automatically qualify the employee for professional work at the next higher level.*

In many cases, analysis of the duties performed and the knowledges and abilities applied will not clearly establish whether the work candidates have performed is or is not truly professional in character. In such cases, special attention should be directed to the third requirement and characteristic of professional cartographic work; namely, vigorous and continuing development of professional knowledge and ability. For example, a candidate who is actively taking courses in mathematics or disciplines closely related to cartography should be given the benefit of the doubt.

ACCEPTANCE OF TECHNICIAN EXPERIENCE

On the other hand, a candidate with no college level education will have considerable difficulty in demonstrating ability to perform professional work of a higher level.

In competitive examinations technician experience may be accepted only toward meeting the professional experience requirements at GS–7.

In inservice placement actions only, technician experience will be accepted as equivalent to the professional cartographic experience required for the same grade when all of the following conditions are met:

(a) The employee is being considered for reassignment from a technician position in grade GS–7 or above to a very similar professional position in the same specialty area at the same grade;
(b) The employee meets the basic qualification requirement of specified for all positions in the professional cartography series;
(c) The employee fully satisfies the professional requirement of "vigorous and continuing development of professional knowledge and ability" or agrees to fulfill a specific plan and obligation for prompt initiation of such professional development;
(d) The technician experience which is accepted in lieu of professional experience, while quasi-professional in character, is of the GS–7 or higher level; and
(e) The duties, degree of responsibility, and subject matter of the professional and technician positions are sufficiently similar to demonstrate clearly that the employee has the necessary background to perform satisfactorily the duties of the professional position to be filled.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For those positions in which operating a motor vehicle is essential to the efficient performance of the work, applications are required to:

—possess, or obtain within 30 days of employment, a valid State driver's license, and
—qualify, after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not auto-

matically disqualify an application for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

CARTOGRAPHIC TECHNICIAN SERIES

Cartographic Aid, GS–1/4
Cartographic Technician, GS–5 and above
Supervisory Cartographic Technician, GS–5 and above

DESCRIPTION OF WORK

Cartographic aids and technicians apply a practical knowledge of the processes, methods, and techniques involved in the construction of new or the revision of existing maps, charts, and related cartographic products. They perform: precompilation tasks (e.g., investigation of source materials, extension of basic geodetic control network, plotting map projections and ground control); drafting, digitizing, and editing or reviewing. Duties may range from the performance of simple unrelated tasks to responsibility for completing map or chart projects. These positions do not require full professional knowledges and abilities and, therefore, do not require education equivalent in breadth and depth to that represented by completion of a professional curriculum leading to a bachelor's degree in cartography or related sciences.

EXPERIENCE, TRAINING AND RELATED REQUIREMENTS

Written test. A written test is not required.

Work Sample. Candidates for positions at the GS–4 level and above may be required to submit a work sample demonstrating, for example, their knowledge of and skill in drafting or compilation.

Experience requirements

Candidates must meet the experience requirements specified below. (Successfully completed education of acceptable type, quality, and duration may be substituted for experience.)

Grade	General (years)	Specialized (years)	Total (years)
GS–1	0	0	0
GS–2	½	0	½
GS–3	1	0	1
GS–4		1	1
GS–5		2	2
GS–6		3	3
GS–7		4	4
GS–8 and above		5	5

General experience

Technical experience as an aid or technician, or as a craftsworker, which provided the basic knowledges or skills involved in one or more of the following activities:

(a) gathering, recording, and assembling data;
(b) using scientific instruments to measure angles, heights, depths, and distances;
(c) computing problems requiring use of high school algebra and trigonometry;
(d) application of drafting or scribing skills.

Specialized experience

This is technical work in cartography, i.e., in the science and art of mapping the earth's surface and graphic representation of geographic and navigational information; or in a closely related field such as photogrammetry or geodesy, where the work required similar knowledges and abilities. (Excess specialized experience may be substituted on a month-for-month basis for general experience.)

Acceptable specialized experience consists of work in the following steps or stages of the map making process or other comparable technical work in cartography:

Research or investigation—Includes work in the collection and selection of source materials and other data for map construction; the analysis and interpretation of source materials to determine their reliability, utility, and value for use in the production process; maintenance of automated and manual source index and recovery files for selected materials applicable to production requirements; and preparation of specifications to obtain source materials such as aerial photographs.

Control—Includes work in the construction of map and charts by plotting planimetric and topographic features on a control base, i.e., a map projection or grid coordinate system on which selected marks or objects on the earth or on a map or photograph, whose geographic locations and elevations have been or will be determined; selecting control points and supplementary features on aerial photographs for use in accomplishment of control solutions, rectification of aerial photographs, and the orien-

tation (both relative and absolute) of stereo models for establishing control extensions and compilation.

Base sheet—Includes work involved with constructing the grid for the area to be shown, and the corresponding meridians and parallels, as appropriate, at the desired intervals; plotting and marking off neatlines, i.e., the bounds for the information which is to appear on the map; and using a rectangular coordinatograph equipped with pencil, inking, or scribing tools.

Manual compilation—Includes work concerned with the transfer of cartographic detail by any of a variety of manual methods and techniques to a common scale, computing angles and closures, plotting positions, delineating detail, sketching contours; assembling original drawings and reviewing maps and charts; and compiling details from surveys, existing maps, and other source data including aerial photographs when the application of photogrammetric techniques is not required.

Photogrammetric compilation—Includes work concerned with operation of monoscopic or stereoscopic equipment involving instrumental and photogrammetric techniques to orient photographs and delineate features and details in map manuscript or digital data form. Also included are the indexing of prints or films, selecting or identifying control points, and computing angles.

Mosaic—Includes work concerned with the assembly of aerial photographs to form a continuous photographic representation of a portion of the earth's surface. Also included is the use of orthophotoscopes or similar instruments to convert perspective photographs to the equivalent of orthophotographs.

Drafting and scribing—Includes drafting or scribing work in the preparation of map manuscripts by placing detail as nearly as possible in exact geographic position; applying stick-up material for features as can be symbolized and for type such as in marginal data and for contour numbers and other map elevations; revision of film positives; preparation of overlays; and ordering of type and symbols.

Edit or review—Included the edit or review of maps and charts during or upon completion of the production process to insure that the map or chart meets accuracy and quality standards.

Digitization—Includes work comparable to manual and photogrammetric compilation to record hypsographic data and cultural features on magnetic tape or other storage media, e.g., recording of hysographic data at a selected horizontal matrix frequency and scanning, encoding, and digitizing selected cultural features.

Quality of experience

For eligibility at *grade GS–4*, at least 6 months of the required specialized experience must have been comparable in difficulty and responsibility to the GS–3 level in the Federal Service.

For eligibility at *grade GS–5*, candidate must have had at least 1 year of specialized experience comparable in level of difficulty and responsibility to the GS–4 level in the Federal Service.

In addition, for positions at GS–9 and above, at least 1 year of the specialized experience must be directly related to the duties of the specific position to be filled. Placement of technicians in positions at GS–9 and above, either through selective certification or noncompetitive action, must be predicated upon: (1) a detailed job analysis of the knowledges, abilities, and skills required for the work, and (2) an itemized matching of the candidate's knowledges, abilities, and skills sufficient to assure satisfactory performance. Acceptable specialized experience must have been characterized by progression in difficulty and responsibility or variety, or must have been supplemented by academic study so that there is substantial development of the candidate's knowledge and ability. Routine performance of repetitive duties without evidence of such growth and development may be accepted for not more than 3 months of specialized experience.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must demonstrate conclusively that the

candidate possesses the ability to perform the duties of the position.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

GS–2—Graduation from a full 4-year or senior high school, in a curriculum which included 1 year of algebra or more advanced mathematics *and* two ½ year related technical courses (e.g., drafting or surveying), natural or physical science, statistics, or other mathematics may be substituted in full for the general experience requirements at the GS–2 level.

GS–3—Graduation from a full four year or senior high school in a curriculum which included satisfactory completion of 4 "year long" (or equivalent) courses in mathematics and science, e.g.:

—2 years of high school level algebra, geometry, trigonometry, and/or more advanced courses; plus,

—2 years of high school course work in the natural or physical sciences and/or drafting or surveying;

may be substituted for one year of general experience and meets in full the experience requirements at the GS–3 level.

OR

Successful completion of one year of post high school education in an accredited resident institution that included or was supplemented by at least 6 semester hours of course work in a combination of cartography, relevant mathematical and statistical sciences, and directly related sciences may be substituted for 1 year of experience, and meets in full the experience requirements at the GS–3 level. Acceptable courses are illustrated in the qualification standard for the Cartography Series, GS–1370. Not more than 3 semester hours of course work in relevant mathematical and statistical sciences will be accepted toward satisfying the 6 semester hour course work requirement.

GS–4—Successful completion of two years of academic study, as described for GS–3 above, which included or was supplemented by at least 12 semester hours of course work in a combination of cartography, relevant mathematical and statistical sciences, and directly related sciences may be substituted in full for the 1 year of specialized experience and meets in full the experience requirements at the GS–4 level.

Acceptable courses are illustrated in the qualification standard for the Cartography, Series, GS–1370. Not more than 6 semester hours of course work in relevant mathematical and statistical sciences will be accepted toward satisfying the 12 semester course work requirement.

GS–5—Successful completion of three or more years of academic study in a college or university that included or was supplemented by at least 18 semester hours of course work in a combination of cartography, relevant mathematical and statistical sciences, and directly related sciences may be substituted in full for the 2 year specialized experiences requirement at the GS–5 level. Acceptable courses are illustrated in the qualification standard for the Cartography Series, GS–1370. Not more than 9 semester hours of course work in relevant mathematical and statistical sciences will be accepted toward satisfying the 18 semester hour course work requirement.

Appropriate education and training other than that outlined above, such as manpower development programs or military training programs, will be granted credit, generally on a month-for-month basis, depending on its applicability and extent. The maximum amount of experience for which education of any kind may be substituted is 2 years.

BASIS OF RATING

Candidates for all positions will be rated on the quality, relatedness, and extent of experience, education, or training in relationship to the knowledge, skills, and abilities in the position(s) to be filled. Ranking will be made on the following basis:

For GS–1: An evaluation of the candidates willingness to do simple procedures; their dependability; and their ability to work safely.

For GS–2 and GS–3: An evaluation of experience, training, and education to determine the degree to which the general knowledge, skills, and abilities described under "Experience requirements" are possessed.

For GS–4 and above: An evaluation of experience, training, and education. Candidates must present evidence of ability to discharge the duties of the position applied for. The information for evaluating experience and training will be taken from the application form, the work sample if one is required, and any additional information which the examining office may wish to obtain through confidential inquiries to supervisors, teachers, and other references. In conducting the evaluation, attention should be given to factors such as: *Assignments:* type, variety, relative difficulty, progression: *Work Output:* productivity (quantity), acceptability (quality), freedom from error, ability to learn from errors. In addition, see the "Guide for the Evaluation of Candidates" and Selective and Quality Ranking Factors" in this standard.

SUPERVISORY POSITIONS

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of this handbook in conjunction with this standard.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for beginning level cartographic aid positions should have the ability to use simple mathematical procedures, the ability to read and understand simple specifications, instructions, and procedures, and the ability to learn technician duties.

Cartographic technicians need to know and to be able to apply, in appropriate measure, practical knowledges and skills such as the following:

1. Knowledge and skill sufficient to perform assigned duties without immediate supervision or with the degree of independence required;
2. Knowledge of the methods and techniques used in the various steps or stages of the map making process, with emphasis on those required in the position[s] to be filled or known to be appropriate for career development needs;
3. Knowledge and skill sufficient to set up and adjust equipment or instruments used in map compilation or the recording of digital cartographic data;
4. Skill in making computations and applying specified procedures in the processing of cartographic data;
5. Knowledge of cartography and related fields sufficient to understand and utilize or explain technical information in articles dealing with cartography;
6. Knowledge and skill sufficient to set up and lay out cartographic work;
7. Knowledge and skill to analyze a situation and make a decision;
8. Ability to work cooperatively and productively as a member of the cartographic team.

In determining the extent to which positions require and candidates possess such knowledges, skills, and abilities, a job-element approach may be helpful. The Job Qualification System for Trades and Labor Occupations (Handbook X118C, May 1969) discusses the job element procedures and techniques to be used in obtaining information from applicants and measuring their qualifications. The approaches in that material may be adapted for use for this occupation.

Since many positions in this series are filled through *inservice placement*, the procedures and questions to be asked of the candidates should be tailored to the requirements of the specific position and the labor market. The material contained in the "Rating for in-service placement" section of the *Internal Qualification*

Guides for Trades and Labor Jobs will be especially helpful.

SELECTIVE AND QUALITY RANKING FACTORS

The Cartographic Technician Series covers a broad and varied spectrum of positions some of which may require specialized knowledges and skills or a particular combination of knowledges and skills which are essential to individual positions but cannot routinely be expected among candidates who meet the broad requirements common to the occupation at the grade involved. For example, some positions may require a knowledge of college level mathematics and/or cartography, photogrammetry, or surveying. While some candidates can be expected to possess this knowledge, others may have established their eligibility on the basis of different or lesser coursework or experience.

Where such requirements are necessary to do the work of the position to be filled, or (as in entry level, developmental, or trainee positions) are necessary to do the work of designated target jobs, agencies are authorized and encouraged to develop selective factors describing the requirements and to use selective certification to fill such positions. This approach is not appropriate when the particular knowledges and skills are to be developed through agency sponsored training or education after employment. When used, documentation should be maintained, such as job analysis data showing the basis for each selective factor. Full provision should be made for recognizing the different ways candidates can meet the requirements.

Agencies may also develop quality ranking factors to assist in determining which candidates are best qualified. These do not affect the basic qualification requirements, but must be directly related to the duties and responsibilities of the position to be filled since they will be used to determine which of the eligible candidates are to be included in the final group from which supervisors and managers will make final selections. Quality ranking factors must distinguish and predict various levels of performance, particularly superior performance.

Examples of quality ranking factors are the knowledges, skills, and abilities listed under the preceding "Guide for the Evaluation of Candidates." Formal study, training, and experience in cartography, mathematics, photogrammetry, etc., or any of the areas listed under specialized experience, may be reflected at appropriate levels in quality ranking factors to the extent related to (predictive of) performance of the positions to be filled.

Additional guidance concerning the evaluation and documentation of selective and quality ranking factors is provided in FPM Chapter 332, Subchapter 4 and Appendix B.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For those positions in which operating a motor vehicle is essential to the efficient performance of the work applicants are required to:

—possess, or obtain within 30 days of employment, a valid State driver's license, and
—qualify, after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency. (See FPM Chapter 930).

PHYSICAL REQUIREMENTS

Applications and employees must be physical and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment.

The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in deter-

mining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to; the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Geodesist GS–5/15

DESCRIPTION OF WORK

Geodesists apply scientific principles and techniques in determining the size and shape of the earth and its gravitational field, measuring the intensity and direction of the force of gravity, and determining the horizontal and vertical positions of points on the earth and in space, where consideration of the curvature of the earth is required.

Geodesists:

—conduct precise horizontal, vertical, gravity, astronomic, and satellite surveys using a variety of techniques including electro-optical, electronic, and laser measuring devices and photogrammetry;

—analyze and evaluate these surveys including the mathematical computation and adjustment of the observations and the final preparation of the resulting data;

—conduct research in fundamental geodesy;

—photographically record positions of artificial earth satellite against the star background, or use range and range rate electronic techniques to form the basis of large-scale triangulation and trilateration;

—plan and establish programs for the acquisition and evaluation of geodetic and gravity data; and

—select and evaluate gravity and geodetic control data to be used for weapons systems, mapping, charting, and engineering purposes, or in other scientific investigations.

BASIC REQUIREMENTS FOR ALL POSITIONS GS–5/15

For all grades, candidates must show successful completion of the requirements prescribed in either paragraph A or B:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree that included 30 semester hours in any combination of geodesy, mathematics, physics, astronomy, engineering science, surveying, photogrammetry, or geophysics. The course work must have included differential and integral calculus.

B. A combination of 4 years of experience and education that included a total of at least 30 semester hours in any combination of geodesy, mathematics, physics, astronomy, engineering science, surveying, photogrammetry, or geophysics. The course work must have included differential and integral calculus. This combination of education and experience must have given the candidate a technical and professional knowledge comparable in scope and intensity to that which would have been acquired through the successful completion of a 4-year college or university curriculum as in paragraph A.

The following types of experience will be accepted in combination with education to complete the 4-year requirement: work in the field or office collecting and computing, or analyzing mathematical data that requires technical competence in fields such as astronomy, engineering, mathematics, physics, geodesy, or cartography.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or a combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, geodesy.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

[1] This standard supersedes the standard for this series that was issued in December 1968.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 1 year of the required experience must have been at the level of difficulty comparable to that of the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph.D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are typically and preferably acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are typically and preferably acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, In-

structions to Users, of this handbook must be met.

CREATIVE OR OUTSTANDING RESEARCH

The provisions for extra credit for creative research experience as stated in section II, part II of this handbook apply to positions covered by this standard.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

AMENDED EDUCATIONAL REQUIREMENT

The provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook apply to positions covered by this standard.

BASIS OF RATING

No written examination is required. Candidates will be rated, on a scale of 100, on the extent and quality of their experience and training. Such ratings will be based upon candidates' statements in their applications and upon additional information that may be secured by the Civil Service Commission.

SELECTIVE PLACEMENT

For positions that require particular knowledges and skills, consideration may be restricted to those candidates whose backgrounds indicate that they possess the required knowledges and skills. For example, geodesists who prepare specifications for survey projects or lead survey parties must have a thorough knowledge of surveying procedures, techniques, and instruments and their capabilities. On the other hand, for geodesists in the office doing mathematical computations, a facility with mathematics, a knowledge of computer capabilities, and, in some cases, programing ability are essential.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for positions at GS–5 and GS–7

Evaluation of candidates for positions at GS–5 and GS–7 is based largely on their academic career, with consideration also being given to any employment experience they may have had. In meeting the basic education requirement, it should be noted that a wide variety of specialized fields of study are acceptable. When evaluating a candidate's academic record, however, consideration should be given to the extent to which the courses contribute to his basic knowledge of the underlying scientific theories, principles, and techniques of geodesy.

Few schools offer undergraduate degrees in geodesy. A major or a substantial amount of course work in geodetic science is, of course, most desirable. Relevance of the course work to the duties of the particular position being filled is important. For example, a civil engineering major may be the superior candidate for a position whose ultimate objective is to plan and direct field surveying activities. On the other hand, a mathematics major may be superior for a position involving the development of formulas or mathematical reference systems for the computation of data. Effort should be made to ascertain the aptitude and the interests of available candidates, especially for those positions involving substantial travel with field parties.

Consideration should be given to the candidate's ability to make practical application of theoretical knowledge and mathematical concepts, ability to understand basic scientific literature, and ability to write clear and accurate reports.

Candidates for positions at GS–9 and above

Professional experience and graduate education should be thoroughly analyzed with regard to those knowledges, skills, and abilities that can be brought to bear upon the position being filled. Graduate education is particularly valuable in research and similar positions requiring a high degree of competence in the rigorous methods of scientific inquiry and mathematical analysis.

The knowledges, skills, and abilities listed below should be considered in evaluating candidates for positions at GS–9 and above. All of these elements will not be relevant for every position. Each position should be thoroughly analyzed to identify the significant elements. The candidates should then be evaluated with respect to the significant elements.

— The ability to analyze and develop solutions to problems in geodesy.
— Knowledge of geodetic techniques and equipment.
— Ability to use geodetic observational and measuring equipment.
— Ability to write technical reports.
— Ability to make technical presentations.
— Resourcefulness to cope with unusual or unprecedented situations.
— Ability to function under pressure, such as time limitations and intense public interest.
— Ability to plan, organize, and coordinate work programs.
— Leadership, tact, and diplomacy to lead parties and act as advisor to foreign governments.

Other indicators that may be considered in evaluating candidates are:

— active membership in and presentations before professional organizations;
— further study and self-development;
— technical publications;
— participation in seminars; and
— recognition in the profession and awards.

Methods of evaluation

Methods of value in appraising employees' qualifications and promotion potential may be found in FPM Supplement 335–1, "Evaluation of Employees for Promotion and Internal Placement."

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 4, except that for positions involving the use of stereoscopic instruments good distant vision in each eye is required.

Land Surveyor GS–5/15

DUTIES STATEMENT

Land surveyors perform professional work in land surveying including duties such as the following:

—establishing, investigating, and reestablishing land boundaries and corners;
—preparing legal descriptions and plats for tracts of land;
—leading survey parties;
—developing new, improved, or more economical land surveying methods, techniques, and procedures;
—managing land survey programs for a geographic area.

BASIC REQUIREMENTS FOR ALL POSITIONS GS–5 THROUGH GS–15

A, B, or C is required:

A. A full 4-year course of study at an accredited college or university leading to a bachelor's or higher degree including 30 semester hours in any combination of courses in surveying, mathematics, engineering, photogrammetry, land law and physical sciences. The study must have included 6 semester hours in surveying.

B. Thirty semester hours of course work as described in paragraph A plus additional appropriate experience and education which when combined with the specified course work will total 4 years of experience and education. This education and experience must have demonstrated that the candidate has acquired a mastery of the fundamental sciences underlying professional land surveying work comparable in scope and intensity to that which would have been acquired through the successful completion of a 4-year college or university curriculum.

→C. Alternatives as described in paragraphs A or B, except that the requirement of up to 30 semester hours, including the 6 semester hours of surveying, may be satisfied by a current registration as a land surveyor in a State, Territory, or the District of Columbia, obtained by written examination. Such registration must have been obtained under conditions outlined in the National Council of Engineering Examiners Unified Model Law for Registration of Surveyors. Candidates wishing to be considered under this alternative must show evidence of registration based on successful completion of the written examinations. Registrations granted prior to adoption of the Uniform Law by the State, Territory, or District of Columbia are not acceptable under this option.←

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must also have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, land surveying. This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience, in or directly related to land surveying (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty and responsibility comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience

must have been at a level of difficulty and responsibility comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above:

Grade:	*Minimum amount or level of education in surveying, geology, or photogrammetry*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook, applies.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" in section III, part II of this handbook.

GUIDE FOR EVALUATION OF CANDIDATES IN RELATION TO JOB REQUIREMENTS

Evaluation of education

The availability of specific land surveying courses is limited in many areas. Therefore, it is useful to consider the extent of preparation in related courses such as land surveying, land law, geomorphology, geodesy, surveying, mathematics, astronomy, photogrammetry, automatic data processing, engineering sciences, geology, cartography, and forestry. Distinctions in quality levels should reflect the nature and quality of preparation in basic and related sciences that contribute to the candidate's broad knowledge of land surveying and to the specialized knowledge required for the position for which being considered.

Evaluation of experience

The following should be considered in the evaluation of experience:

A. *Nature, level, recency, and progressiveness of experience.*—Experience in land surveying is normally most valuable. Geodetic and topographic surveying, however, are typical examples of fields directly related to land surveying that meet the additional experience requirements. The position-classification standard for the Land Surveying Series includes a discussion of the nature of land surveying and should be helpful in evaluating experience as to kind and grade level.

Generally, professional land surveying experience is characterized by the following professional attributes in addition to technical surveying competence:

—Knowledge of earth sciences, especially geomorphology.

—Application of mathematical, scientific, or managerial skills and knowledges to the development of new methods and improved procedures or to the direction of survey programs.

In addition, professional land surveying requires the following:

—Knowledge of laws and regulations affecting surveys and boundaries.

—Knowledge of the political and economic influences on the community or area under survey.

—Understanding of rules of evidence and their application to property ownership problems, including interpretation of evidence, and writing of property descriptions and survey recommendations.

Note: Professional land surveying requires a practical knowledge of landownership laws, but does not require full professional legal training.

All other things being equal, the best experience is that which shows normal progression in duties and responsibilities at least to a level demonstrating the applicant's ability to perform successfully at the level for which being considered. Stale experience or experience which has not shown steady progression in difficulty and responsibility may be less valuable.

Experience involving many, varied surveying duties that require knowledge in a number of related fields is generally the most valuable because of its broadness. For positions in a narrow, specialized field, however, appropriate consideration should be given to the depth and intensity of experience in that particular field.

The evaluation of work products may have particular value in considering candidates for positions that require writing ability. Illustrative work products, particularly those that involve technical explanations or interpretations and those that are instructional or procedural, have special value in determining whether the candidates are able to meet this requirement of the positions.

Collateral experience, including valuable experience in excess of requirements and experience in closely related fields or the fundamental physical science, may be given additional weight.

B. *Accomplishments.*—Considered here are the candidate's demonstrated knowledge of surveying and related sciences, his professional interest as shown by self-development activities, his stature in the profession, including registration as a land surveyor or professional engineer, and his accomplishments (considering opportunities for such).

Peer judgments are important in appraising accomplishments. Evidence used to appraise accomplishments may include publications, participation in professional societies, leadership activities in the field, honorary and other recognition, contributions to knowledge, and the like. Publications should be carefully appraised in terms of their total contribution to knowledge in the field rather than by volume. Citations by others as an authority, however, may serve as a partial index of the value of published work. The extent of professional recognition may be judged by such things as invitations to present papers before professional groups (international, national, regional, local); activities in professional societies; use as a resource by other scientists; and the like.

c. *Personal attributes, abilities, and characteristics.*—Following are some of the abilities and personal characteristics most important in land surveying positions. They may be given weight as appropriate for the position for which being considered:

1. Ability to cope with unusual situations and emergencies in the field;
2. Reasoning ability;
3. Ability to write property descriptions and reports;
4. Resourcefulness;
5. Planning ability;
6. Ability to work with and supervise others on a team;
7. Ability to search old property records, to elicit information, and to understand the effect of court decisions on fixing boundaries;
8. Ability to make decisions.

Methods of evaluation

Methods of value in appraising employees' qualifications and promotion potential are described in FPM Supplement 335-1, Evaluation of Employes for Promotion and Internal Placement.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 13. In addition, applicants must be able to distinguish basic colors, and must possess emotional and mental stability.

GEODETIC TECHNICIAN SERIES

Geodetic Aid GS–2/4
Geodetic Technician GS–5/12

DESCRIPTION OF WORK

Persons appointed to these positions will perform or supervise the performance of technical work in the analysis, evaluation, processing, computation, and selection of geodetic survey data. The work includes such activities as the preparation, maintenance, checking, and compilation of geodetic control information; the coding of geodetic data for data processing; the analysis and computation of field survey data; and the evaluation and selection of geodetic control. In performing the duties of these positions the appointee applies a knowledge of computational methods, and a specialized working knowledge of the instruments and methods used in geodetic surveying and the principles of projections and grid systems. The degree of responsibility, the amount of supervision received and exercised, and the importance of the work vary with the grade of the position.

EXPERIENCE, TRAINING AND RELATED REQUIREMENTS

Written test

Candidates for positions in grades GS–2 and GS–3 must pass a written test of abilities necessary to learn and perform the duties of these positions.

Experience requirements

Candidates must meet the experience requirements specified below. (Successfully completed education of acceptable type, quality, and duration may be substituted for experience.)

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-2	½	0	½
GS-3	1	0	1
GS-4	1½	½	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5
GS-8 and above	2	4	6

General experience: Experience in the mathematical, engineering, or physical sciences, that required exercise of skill and judgment in selecting pertinent information from reference materials, applying analytical methods, or making technical computations in such fields as astronomy, engineering, mathematics, physics, surveying, and cartography.

Specialized experience: Technical experience acquired in connection with the planning of horizontal and vertical control networks; the computation of geographic positions, grid coordinates, elevations, or the elements of map projections; the preparation of technical reports and diagrams showing the status of geodetic survey projects; or the evaluation of control networks.

Experience in field survey work, such as the making of accurate measurements and the field computations required for the establishment of third-order (or higher order) horizontal and vertical control to extend or supplement a national control network, may be considered as specialized experience and be credited on a year-for-year basis.

Specialized experience must show that applicants have a knowledge of the technical terms, techniques, and theories of geodesy that will enable them to make determinations regarding the reliability and usefulness of geodetic data.

Supervisory → positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard. ←

QUALITY OF EXPERIENCE

For eligibility *at grade GS–4*, the 6 months of required specialized experience must have been comparable in difficulty and responsibility to the GS–3 level.

For eligibility *at grade GS–5*, at least 1 year of the required experience, including at least 6 months of specialized experience, must have been comparable in difficulty and responsibility to the GS–4 level.

For eligibility *at grades GS–6 through GS–11*, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service. For eligibility *at GS–12*, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service. Specialized experience acceptable under this paragraph must have been characterized by progression in difficulty and responsibility or variety, or must have been supplemented by academic study so that there is substantial development of the candidate's knowledge and ability. Routine performance of repetitive duties without evidence of such growth and development may be accepted for not more than 3 months of specialized experience.

For positions *at GS–9 and above*, at least 1 year of the specialized experience must be directly related to the duties of the specific position to be filled. Placement of technicians in positions at GS–9 and above, either through selective certification or noncompetitive action, must be predicated upon (1) a detailed job analysis of the knowledges, abilities, and skills required for the work, and (2) an itemized matching of the candidate's knowledges, abilities, and skills sufficient to assure satisfactory performance.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must demonstrate conclusively that he possesses the ability to perform work commensurate with the duties of the position.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

GS–2: Graduation from a full 4-year or senior high school, in a curriculum which included 1 year of algebra or more advanced mathematics and two ½-year courses in other mathematics, natural or physical science, and/or technology (e.g., drafting or surveying) may be substituted in full for the experience requirements at the GS–2 level. (High school education may not be substituted for any part of the experience requirements for GS–3 and above.)

GS–3: Successful completion of 1 academic year of post high school education in an accredited resident institution that included or was supplemented by at least 12 semester hours in any combination of courses such as: geodesy, geography, cartography, physical science, engineering science, forest mensuration, surveying, or any branch of mathematics except financial or commercial mathematics, may be substituted for 1 year of experience, and meets in full the experience requirements at the GS–3 level.

GS–4: Two years of academic study as described for GS–3 above, which included or was supplemented by at least 24 semester hours in any combination of the subjects as listed, may be substituted for 2 years of experience including ½ year of specialized experience, and meets in full the experience requirements at the GS–4 level.

GS–5: Successful completion of 4 years of education as described at the GS–3 level leading to a bachelors degree, or a full 4-year course in an accredited college or university leading to a bachelor's degree with major study in geodesy or civil engineering, may be substituted for 3 years of experience, including 1 year of specialized experience, and meets in full the experience requirements at the GS–5 level.

Appropriate education and training other than that outlined above, such as in manpower development programs or military training programs, will be granted credit depending upon its applicability and extent. The maximum amount of experience for which education of any kind may be substituted is 3 years.

(TS 95)
December 1965
Reprinted without change
December 1975 (TS 156)

EXTRA CREDIT FOR OUTSTANDING COMPETENCE
(OPTIONAL PROVISION)

For positions at GS–9 and above, candidates who show positive evidence of outstanding competence and exceptional accomplishment may be rated eligible for the next higher grade than that for which they would otherwise qualify on the basis of the standard requirements of education and experience. Such candidates must demonstrate (*a*) outstanding competence based on a combination of factors such as subject-matter knowledge, creativity, specialized skills, progression of experience, and continuing growth through academic study; (*b*) a record of accomplishment which is recognized in the professional and technical community as exceptional and is marked by awards, published papers, citations, patents, or similar evidence; (*c*) proven ability to perform fully the work of the position to be filled; and (*d*) that they are clearly outstanding with respect to candidates with comparable backgrounds of experience and training.

BASIS OF RATING

Competitors for all positions will be rated on a scale of 100. The basis of rating will be:

For GS–2 and GS–3: Written test scores.

For GS–4 and above: An evaluation of experience and training. Candidates must present evidence of ability to discharge the duties of the position applied for. The information for evaluating experience and training will be taken from the application form and any additional information obtained through confidential inquiries to supervisors, teachers, and other references. In conducting the evaluation, attention should be given to factors such as—*Assignments:* type, variety, relative difficulty, progression; *Work Output:* productivity (quantity), acceptability (quality), freedom from error, ability to learn from errors; *Interest and Attitude:* career objectives, participation in training activities, self-improvement activities, work attitude, acceptance of criticism, etc.; *Knowledge:* all positions in the series require some knowledge of surveying methods and procedures; basic understanding of geodetic terms and symbols; familiarity with basic sources of geodetic data including their characteristic limitations; and knowledge of mathematics through trigonometry.

Positions in the higher grades are typically expected to have increasing capability in appraising the characteristic strengths and weaknesses of geodetic control for major geographic areas and to understand how these strengths and weaknesses affect the uses which the geodetic control will support.

NONCOMPETITIVE ACTIONS

Written test

The test may be waived in noncompetitive actions, but not for appointments outside the register.

Credit for high school education

In noncompetitive actions at GS–2 and GS–3, successfully completed high school education may be credited in accordance with the "add-on" rule, Section 3–1(b), FPM Chapter 337.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 4; except that for positions involving the use of stereoscopic instruments, good distant vision in each eye, with or without glasses, is required.

Forest Products Technologist GS–5/15

DESCRIPTION OF WORK

Forest products technologists perform professional and scientific work concerned with the study of wood and wood products, their utilization, and the development and improvement of methods used to produce, harvest, manufacture, and utilize these woods and their products. The work involves studies related to the identification of different types of woods, their growth characteristics, their physical and chemical properties, and their potential use; the development of wood products, such as veneers, plywood, laminated wood, and the adhesives used to bond these materials together; the methods used to harvest, mill, convert, grade, and season different types of woods; the development and improvement of methods used to protect wood and wood products against weathering, decay, insect damage, and fire, by treatments and coatings, or similar measures; the use of wood products for packaging, containers, and other usable items; and the production of new products on a pilot-plant scale.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements

Applicants must have successfully completed one of the following requirements:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in wood technology, wood utilization, forestry, biological science, chemistry, physics, mathematics, engineering, or a closely related discipline or field of science. This course of study must have included at least 20 semester hours in any (or any combination) of the following subjects: chemistry, physics, mathematics, forest insects, forest pathology, botany, statics, kinematics, mechanics of materials, and subjects pertaining to wood technology and wood utilization, such as physical and mechanical properties of wood, anatomy and identification of wood, seasoning and preserving of wood, plywood and laminated wood, harvesting of wood products, and manufacture of wood products. The quality of this course-work must have been such that it would serve as a prerequisite for more advanced academic study in the field of science to which it pertains.

B. A total of at least 20 semester hours in appropriate forest products technology subjects, as described in A above, plus a sufficient amount of additional experience or education to total 4 years of education and experience or 4 years of education. The nature and quality of this additional experience or education must have been such that, when combined with the prescribed 20 semester hours in forest products technology subjects, it would give the individual a professional and scientific knowledge of forest products technology comparable to that normally gained by successfully completing the full 4-year course of study described in A above.

Applicants for positions in research, development, and similar highly technical and scientific functional areas of forest products technology work must meet the requirements prescribed in A above.

Qualifying course-work in forest products technology

Forest products technology is one of several functional areas of scientific work that make up the general occupational complex of mixed- or multi-discipline positions called technologists. It is, by its very nature, a heterogeneous occupation that requires the application of various combinations of scientific knowledges, abilities, and skills derived from the biological, physical, and mathematical sciences and engineering. These requirements vary considerably depending upon the purpose of the work. There is no single, readily identifiable, core of requirements that can be applied generally in this occupation, even at the entrance levels. Nevertheless, the forest products technologist must have a thorough grasp of the scientific principles that underlie his work, and must know and be able to apply the scientific methodology that his work requires.

The course-work requirements described in

the minimum educational requirements are based on the premise that a forest products technologist can obtain the scientific and technological training the work requires by preparing himself in a pertinent discipline or field of science, or by taking appropriate combinations of course-work in several disciplines or fields of science. Because the nature of the work varies so much, the actual requirements of any specific type of forest products technologist position are, to a large extent, determined by the job demands of the particular position being filled. The minimum educational requirements should be interpreted accordingly, particularly at the GS–11 and higher grades.

Courses in chemistry, physics, and mathematics are qualifying, as are courses in wood technology and wood utilization, or courses that emphasized or dealt with the application of the biological, physical, and mathematical sciences, and engineering, to wood technology and wood utilization. To be qualifying, course-work in botany should emphasize the basic aspects of the science or deal with such subject-matter areas as anatomy, morphology, and cytology. Course-work in forestry should be applicable to forest products technology, i.e., in basic forestry or directed toward forest products technology and the utilization of forest products. The course-work in engineering should be in basic engineering or directed toward mechanics, materials, or the properties and utilization of materials.

As the minimum educational requirements indicate, courses in forest insects, forest pathology, statics, kinematics, mechanics of materials, wood technology, and wood utilization are qualifying *per se*, on the basis of their direct application to forest products technology in general.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in forest products technology or a directly related and directly applicable discipline or field of science or technology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.

GS–11.....	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

QUALIFYING FIELDS OF GRADUATE STUDY

To be qualifying, graduate study must have been in an appropriate subject-matter field of forest products technology, such as wood technology or wood utilization, or in a closely related discipline or field of science, where the curriculum or pattern of training can be applied directly to forest products technology.

Graduate study in related fields, such as an appropriate subject-matter field of chemistry, physics, engineering, botany or forestry (e.g., forest entomology, or forest pathology) may also be qualifying, *provided* the training placed a sufficient amount of emphasis on forest products technology, or provided it can be applied directly to forest products technology.

CREATIVE OR OUTSTANDING RESEARCH

Applicants who furnish positive evidence that they have performed highly creative or outstanding research, that either has led or can lead to major advances in a specific area of research, to a major advance in the discipline or field of science involved, or to major advances in science in general, may be rated on this basis for *highly demanding research positions* requiring similar abilities. Under these circumstances, the applicant can be rated eligible for the next higher grade above that for which he would normally be rated, *provided* he has not

been rated eligible at this grade on the basis of meeting one of the graduate study requirements.

To receive this rating, the work must have been creative in the sense that it developed a basic principle, product, concept, method, approach, or technique, or provided a body of basic information that opened the way for major advances in the discipline or field of science involved, or to advances in science in general, by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of science in a major area.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

QUALIFICATIONS INQUIRIES

For all grades of these positions, confidential inquiries, including contacts with the applicants' supervisors and associates, or with other persons familiar with their qualifications, may be made to obtain further information about their technical, professional, and personal qualifications, and about their character and suitability for these positions.

BASIS OF RATING

No written test is required. Competitors will be rated on the basis of their education, training, experience, and personal qualifications in relation to the requirements of the specific positions for which they are being considered. Ratings will be based on competitors' statements in the applications, and upon any additional evidence that may be secured through qualification inquiries or similar measurement devices used in the examination.

SELECTIVITY IN PLACEMENT

A varying amount of selectivity is required to fill positions in this series. The paramount requirements for these positions may be related to the applicant's ability to perform the particular kind of specialized work involved, to his knowledge and ability to perform similar work in related occupational areas of science, where the work applies directly to the subject-matter field of forest products technology that is involved, or to his specific knowledge of a related discipline or field of science that is being applied to forest products technology work in a new or exploratory approach to the problems that need to be solved.

As an example, forest products technologists apply various combinations of scientific knowledges, abilities, and skills in their work, and may or may not be basically trained in one of the subject-matter fields of forest products technology, such as those dealing with solid wood products, wood based materials, wood quality, wood engineering, the chemistry of woods, or entomological or pathological problems. Assignments are specialized to the extent that they may be concerned with these subject-matter fields at the GS–5 and GS–7 grades. At the GS–9 and higher grades, the work specializes more and may be concerned with such subject-matter areas of these fields as those dealing with wood structure and systematic anatomy, sawmill techniques and products, additives and extracts of woods, insect, disease, and physical damage to timber products, protection of wood and wood structures, the manufacture of wood products, the chemistry of adhesions, or the solid state mechanics of wood fibers.

Any such position shall be filled on the basis

of the job demands, and only those applicants whose total background of education, training, and experience shows that they possess the knowledge, abilities, and skills needed to meet these job demands will be considered eligible for such positions.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, most positions require the ability to distinguish either basic or shades of colors. Applicants must also possess emotional and mental stability.

Food Technologist GS–5/15

DESCRIPTION OF WORK

Food technologists perform professional and scientific work concerned with the study of problems related to the production, processing, and preservation of foods and food products, the development and utilization of these products, and the measurement of their qualities as a food. The work may deal with cereal, fruit, vegetable, and other plant products, with dairy and poultry products, with meat and meat products, or with fish and fish products. It may be primarily concerned with the evaluation of raw food products to determine the standards of quality that should be applied, the best methods of processing, or their potential value as a food; the development, introduction, and improvement of methods used to test and measure quality changes resulting from biological, chemical, or physical changes; the determination of how these changes affect handling, processing, storage, and shipping of foods; the development and improvement of methods used to preserve, process, store, and handle foods and food products; or the evaluation and appraisal of specific qualities of food, i.e., milling qualities, organoleptic qualities, etc.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements

Applicant must have successfully completed one of the following requirements:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in food technology, dairy technology, microbiology, biology, chemistry, physics, or a closely related discipline or field of science. This course of study must have included at least 30 semester hours of course-work in the basic biological and physical sciences, with a minimum of 20 semester hours in food technology and closely related subjects, or 20 semester hours in subjects that can be applied directly to food technology. The quality of this course-work must have been such that it would serve as a prerequisite for more advanced academic study in the field of science to which it pertains.

B. A total of at least 30 semester hours in basic biological and physical sciences with a minimum of 20 semester hours in appropriate subjects, as described in A above, plus a sufficient amount of additional experience or education to total 4 years of education and experience or 4 years of education. The nature and quality of this additional experience or education must have been such that, when combined with the prescribed 30 semester hours in the basic biological and physical sciences, it would give the individual a professional and scientific knowledge of food technology comparable to that normally gained by successfully completing the full 4-year course of study described in A above.

Applicants for positions in research, development, and similiar highly technical and scientific functional areas of food technology must meet the requirements prescribed in A above.

Qualifying course-work in food technology

Food technology is a multi- or mixed-field of science and technology, and one that brings various combinations of science and technology to bear on particular problems related to the study of foods and food products, their production, processing, handling, and utilization, and the evaluation of their quality, purity, and value as a food. A food technologist must have a thorough grasp of the fundamental sciences and scientific principles that underlie his work, and must know the particular kind of methodology that is applied in his field of food technology. There is no single, identifiable, core of educational requirements that can be applied generally to these positions.

The course-work requirements described in the minimum educational requirements are based on the concept that a food products technologist may be trained in a specific field of food technology, in one of the disciplines or fields of science that are applied in food technology work, or in a combination of subjects that would give him the technological and scientific training needed to perform the work

in a particular subject-matter field of food technology.

Basic or laboratory courses in physics, chemistry, the basic biological sciences and food technology, meet the 30-semester-hour requirement in the basic biological and physical series.

Some course-work is designed to provide training in a particular subject-matter field of food technology, e.g., dairy technology or milling (cereals), or training in food technology in general (food technology courses). Some course-work in the applicable disciplines or fields of science, such as microbiology, physics, or chemistry, is quite valuable. Course-work in any of the subject-matter fields of food technology, microbiology (as applied to foods), and chemistry or physics (where applicable to or valuable in food technology) is qualifying.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, food technology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.

GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

QUALIFYING FIELDS OF GRADUATE STUDY

To be qualifying, this graduate study must have been in food technology, one of the major fields of food technology, such as dairy technology, milling (cereals), etc., or have been in a discipline or field of science directly applicable to food technology and have followed a curriculum or pattern of training that can be applied in food technology.

Graduate study in related disciplines or fields of science and technology, or combinations of particularly valuable courses, such as microbiology, chemistry, and physics, may qualify, *provided* the combination of courses or the subject-matter area of study gives the specific training required to perform the work in a particular field of food technology.

CREATIVE OR OUTSTANDING RESEARCH

Applicants who furnish positive evidence that they have performed highly creative or outstanding research, that either has led or can lead to major advances in a specific area of research, to a major advance in the discipline or field of science involved, or to major advances in science in general, may be rated on this basis for *highly demanding research positions* requiring similar abilities. Under these circumstances, the applicant can be rated eligible for the next higher grade above that for which he would normally be rated, *provided* he has not been rated eligible at this grade on the basis of meeting one of the graduate study requirements.

To receive this rating, the work must have been creative in the sense that it developed a basic principle, product, concept, method, approach, or technique, or provided a body of basic information that opened the way for major advances in the discipline or field of science involved, or to advances in science in general, by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of science in a major area.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in the General Schedule Occupations," in part III of this handbook.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

QUALIFICATIONS INQUIRIES

For all grades of these positions, confidential inquiries, including contacts with the applicants' supervisors and associates, or with other persons familiar with their qualifications, may be made to obtain further information about their technical, professional, and personal qualifications, and about their character and suitability for these positions.

BASIS OF RATING

No written test is required. Competitors will be rated on the basis of their education, training, experience, and personal qualifications in relation to the requirements of the specific positions for which they are being considered. Ratings will be based on competitors' statements in the applications, and upon any additional evidence that may be secured through qualification inquiries or similar measurement devices used in the examination.

SELECTIVITY IN PLACEMENT

A varying amount of selectivity is required to fill the more specialized positions in this series, and the paramount requirements for these positions may be related to the applicant's ability to perform the particular kind of highly specialized work involved, or to his ability to perform similar work in related occupational areas of science, where the work applies directly to the subject-matter field of food technology that is involved.

For example, food technologists are usually trained in one of the major subject-matter fields of food technology, e.g., those concerned with food technology in general, meat and meat products, fish and fish products, cereals (including processing), fruits and vegetables, dairy products, milling, etc., or in a scientific discipline or field of science directly applicable to one of these subject-matter fields of food technology. Assignments are made on this basis at the GS–5 and GS–7 grades. At the GS–9 and higher grades, the work tends to become more specialized, and may require specific training and experience in such subject-matter fields of food technology as those dealing with specific food qualities, the preparation or processing of particular kinds of foods, milling properties, organoleptic qualities, freezing or storage qualities, or similar areas of specialization as they apply to one of the major areas of food technology or to specific kinds of foods.

Any such position shall be filled on the basis of the job demands, and only those applicants whose total background of education, training, and experience shows that they possess the knowledges, abilities, and skills needed to meet these job demands will be considered eligible for such positions.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, most positions require the ability to distinguish either basic or shades of colors. Applicants must also possess emotional and mental stability.

Cotton Technologist, GS–5/15

BASIC REQUIREMENTS FOR ALL GRADES

Applicants must have successfully completed one of the following:

A. A full 4-year course in an accredited college or university leading to a bachelor's degree in cotton technology or related subjects such as physics, chemistry, or mechanical or electrical engineering. This study must have included courses in cotton technology consisting of lectures, recitations, and appropriate laboratory work totaling at least 20 hours.

B. Courses in cotton technology or related subjects such as physics, chemistry, or mechanical or electrical engineering (in an accredited college or university, consisting of lectures, recitations, and laboratory work totaling not less than 20 semester hours) plus additional appropriate experience or education which, when combined with the 20 semester hours in cotton technology or related subjects, will total 4 years of education and experience and give the applicant a technical knowledge comparable to that which would have been acquired through successful completion of a 4-year college course.

Applicants for positions which involve highly technical research, design or development, or similar scientific functions must have successfully completed the full 4-year course of study described in A above.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, cotton technology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when—

a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature.
b. The knowledges required for the work are *typically and preferably* acquired through graduate study.
c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.

GS–12 Research positons. Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria:

a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature.
b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level.
c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

WRITTEN TEST

No written test is required.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

Fiber Technologist GS-5/15

BASIC REQUIREMENTS FOR ALL GRADES

Applicants must have successfully completed one of the following:

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in fiber technology, biology, chemistry, physics, or a closely related subject-matter field, including at least 20 semester hours of course-work in fiber technology and closely related subjects.

B. A total of at least 30 semester hours of course-work in an accredited college or university with major study in fiber technology, biology, chemistry, physics, or a closely related subject-matter field, including at least 20 semester hours in fiber technology and closely related subjects, plus enough additional experience, or education, of an appropriate nature to total 4 years of experience and education or 4 years of education. The quality of this additional experience or education must have been such that, when combined with the required 30 semester hours in fiber technology, biology, chemistry, physics, or closely related subjects, it gives the applicant a technical knowledge comparable to that normally acquired through the successful completion of the full 4-year course of study described in paragraph A above.

Applicants for positions which involve highly technical research, design or development, or similar scientific functions must have successfully completed the full 4-year course of study described in paragraph A above.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, fiber technology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	Minimum amount of professional experience in appropriate subject-matter fields (years)
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade:	Minimum amount or level of education in appropriate subject-matter fields
GS-7	One full academic year of graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.

GS–11–Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

WRITTEN TEST

No written test is required.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, some positions will require the ability of applicants to distinguish basic or shades of colors. In other positions this is not required. Applicants must possess emotional and mental stability.

TEXTILE TECHNOLOGY SERIES

Textile Technologist GS–5

Applicants must have successfully completed one of the following:

A. A full 4-year course in an accredited college or university leading to a bachelor's degree in textile technology including courses in textile technology consisting of lectures, recitations, and appropriate laboratory work totaling 20 semester hours; *or*

B. Courses in textile technology in an accredited college or university consisting of lectures, recitations, and appropriate practical laboratory work totaling 20 semester hours; plus additional appropriate experience or education which, when combined with the 20 semester hours in textile technology, will give the applicant a technical knowledge comparable to that which would have been acquired through successful completion of a full 4-year college course.

All courses offered for qualification must have have been acceptable for credit toward the completion of a standard 4-year professional curriculum leading to a bachelor's degree at an accredited college or university. Courses leading to higher degrees will also be accepted.

For some positions which involve highly technical research, design or development, or similar functions, selection may be restricted to those eligibles who show the successful completion of a full college course in the appropriate field. A written test is required.

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

PHOTOGRAPHIC TECHNOLOGY SERIES

Photographic Technologist GS–5/15

DESCRIPTION OF WORK

Photographic technologists plan, direct, or conduct professional work involving the design, development, modification, installation, instrumentation, testing, and evaluation of photographic equipment, materials, processes, and systems. They work on cameras and auxiliary equipment, control systems, processors, printers, viewers, photosensitive materials, and other photographic items. Photographic instrumentation may involve work on schlieren systems, interferometry systems, spark shadowgraph systems, ultra-high-speed photography, and photographic data recording systems for underwater, surface, and air phenomena. In order to perform their work photographic technologists need to be able to apply a knowledge of the principles of photography, chemistry, physics, mathematics, and engineering; to use standard reference texts in all these fields; and to operate mechanical, electronic, optical, and special photographic instruments and devices.

BASIC REQUIREMENTS FOR ALL GRADES

Candidates must have successfully completed the requirements prescribed in paragraph A *or* B *or* C.

A. A full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree with major study in any scientific or engineering field which included 6 semester hours in college-level mathematics and 24 semester hours of coursework in one or any combination of the following fields: photographic technology, photographic science, photogrammetry, engineering, physics, or chemistry. The nature and quality of this coursework must have been such that it would serve as a prerequisite for more advanced study in the field or subject-matter area of science to which it pertains.

B. At least 30 semester hours of coursework as described in A above, plus a sufficient amount of additional experience or education to total 4 years of education and experience or 4 years of education. The nature and quality of this additional experience or education must have been such that, when combined with the prescribed courses, it would give the individual a professional and scientific knowledge comparable to that normally gained by successfully completing the full 4-year course of study described in A above.

C. A total of not less than 4 years of education, training and/or technical experience of such nature and quality that it would give the individual an understanding of engineering and of the physical and mathematical sciences underlying it substantially equivalent to that furnished by a full 4-year or longer professional engineering curriculum, accredited by the Engineers' Council for Professional Development. Candidates whose qualifications are evaluated under this paragraph must be registered as a professional engineer, or must have successfully passed the Engineer-in-Training examination, or must be currently employed in a professional engineering position in the Federal service.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, photographic technology.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are

required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

QUALIFYING COURSEWORK

Courses in photography are qualifying only if they are technological or scientific in nature,

rather than practical or artistic. Thus, for example, courses in photographic chemistry or photographic instrumentation would be qualifying; but those in commercial photography, portrait photography, etc., would not be.

PROFESSIONAL EXPERIENCE

Professional experience is defined as experience in nonroutine phases of photographic technology, photographic science, photogrammetry, engineering, chemistry, physics, or closely related science or discipline. This experience must have demonstrated a professional body of knowledge of the discipline such as would be acquired through completion of all the requirements for a bachelor's degree in the discipline, a professional ability to apply scientific methodology to photographic technology problems, and a continuing development of professional knowledge and ability.

CREATIVE OR OUTSTANDING RESEARCH AND DEVELOPMENT

Candidates who furnish positive evidence that they have performed highly creative or outstanding research and development, that either has led or can lead to major advances in a specific area of research, to a major advance in the discipline or field of science involved, or to major advances in science in general, may be rated on this basis for *highly demanding research and development positions* requiring similar abilities. Under these circumstances, the candidate can be rated eligible for the next higher grade above that for which he would normally be rated, *provided* he has not been rated eligible at this grade on the basis of meeting the graduate study requirements.

To receive this rating, the work must have been creative in the sense that it developed a basic principle, product, concept, method, approach, or technique, or provided a body of basic information that opened the way for major advances in the discipline or field of science involved, or to advances in science in general, by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of science in a major area.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

SELECTIVE PLACEMENT

Positions in this series may require specialized experience in a particular area of photographic technology, such as optics, processing, instrumentation, etc. Selective placement, therefore, may be used for competitive appointments above GS–7.

IN-SERVICE PLACEMENT PROVISIONS

In connection with the establishment of this series, the reclassification of positions from Technologist (Photographic Equipment) GS–1390 to Photographic Technologist GS–1386 does not require reexamination of the qualifications of the incumbents. Such employees may be promoted, reassigned, or transferred by in-service placement action to any other position in the Photographic Technology Series in accordance with the "add-on" rule in Section 3–1(b) of FPM Chapter 337.

BASIS OF RATING

No written examination is required. Candidates will be rated, on a scale of 100, on the extent and quality of their experience and training. Such ratings will be based upon statements of candidates in their applications, upon qualification inquiries, and upon any additional information that may be secured by the Commission.

GUIDE FOR THE EVALUATION OF CANDIDATES

Most appointments to grades GS–5 and GS–7 are made from a register. The ranking of candidates should consider their potential ability to perform professional work in photographic technology, both at the entry and at higher grade levels. This evaluation is based primarily on a candidate's academic career and any employment he may have had. Academic achievement may take into consideration such factors as the extent to which the courses successfully completed contribute to the candidate's basic knowledge of photographic technology and related disciplines, the grades received in these courses, and relative standing in the class. In addition to evaluating the candidate's academic knowledge, information should be obtained on such factors as his general reasoning ability, ability to make practical application of theoretical knowledge, ability to understand and prepare written technical reports, and ability to follow instructions and cooperate with others in accomplishing his work.

For positions at GS–9 and above, evaluation of undergraduate college training is less important than the consideration of graduate training and professional work experience. Potential ability is less important than actual achievement. Information should be obtained on the nature and significance of the candidate's work experience, including the extent to which it is related to work performed in photographic technology. Consideration should be given to whether the experience involved the performance of professional work of increasing difficulty and complexity and the assumption of more responsibility. Other professional qualifications that should be considered are membership in professional organizations, participation in seminars and study groups, etc. In addition to possessing the personal characteristics listed above for candidates at the GS–5 and GS–7 levels, candidates for positions at GS–9 and above may be evaluated for such traits as initiative, resourcefulness, ability to plan work, etc. Undue weight should not be given to any single factor in the evaluation; *all factors should be used in determining the candidate's level of achievement.*

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 4. In addition, some positions require the ability to distinguish either basic or shades of colors. Applicants must possess emotional and mental stability.

DOCUMENT ANALYSIS SERIES

Document Analyst GS–5/15

Statement of duties

Document analysts examine documents of all types arising from investigative work, law enforcement, protection of national security, and the various activities of the government that involve the production of documents and a responsibility for their integrity. These documents include checks, bonds, money orders, anonymous and other letters, records, executed forms, etc. They may have been questioned as to their authenticity, date, authorship, history, or freedom from alteration.

Document analysts study the individual characteristics of the handwriting, handprinting, typewriting and other methods of recording on the document and may compare such impressions with standard specimens. In their examinations they use magnifying glasses, monocular and binocular microscopes with various attachments, specialized lighting effects such as those secured by ultraviolet and infrared illuminations, polarizing screens, and color filters, cameras with a variety of lenses and various kinds of filters and lights, as well as other mechanical and optical aids. Chemical analysis may be used to reveal erasure, restore eradicated or obliterated writings or markings, make visible secret writing, decipher charred documents, develop latent fingerprints, or make identification of inks, papers, and other writing materials and instruments.

Document analysts must know not only how to use the necessary scientific equipment but also which instruments and techniques are best suited to solve the particular problem on which they are working. They may engage in research related to document analysis techniques. They also use reasoned judgment in drawing conclusions from their examinations and write reports recording the results of their findings. At higher grade levels, they testify as expert witnesses before courts, commissions, hearing boards, and other judicial or quasi-judicial bodies. They must be able to prepare or supervise the preparation of illustrative charts and photographic exhibits and to explain convincingly their findings and conclusions and defend them under cross-examination.

Experience requirements

Except for the substitution of education for experience as provided for in these standards, applicants must have had, as a minimum, progressively responsible experience of the length shown in the table below:

Grade	General (years)	Specialized (years)	Total (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11 and above	3	3	6

General experience is experience in one or more of the following:

(1) Experience which has involved the microscopic examination of materials (such as bullets and cartridge cases, tools and tool marks, hairs and fibers) or the conduct of laboratory tests and experiments and has provided a knowledge of scientific techniques, procedures, and instruments. Such experience might be gained as a physical science aid or technician, laboratory aid, or quality control inspector.

(2) Experience as an investigator or law enforcement official which has provided a familiarity and working knowledge of document identification and detection procedures and techniques.

(3) Experience in photography where the purpose has been to show accurate details of objects or to show information not available to the unaided eye. Such experience might be gained in such fields as scientific, engineering, technical, or medical photography.

(4) Experience that has provided a technical knowledge of the graphic arts, printing, illustrating, and other recording and duplicating processes and of the related materials, equipments, instruments, and machines.

Specialized experience

(1) Examination and comparison of handwriting, printing, typewriting, and other mechanical impressions, in order to make determinations of identity or genuineness.

(2) Analysis of inks, papers, and other recording instruments and materials by chemical, microscopic and other methods in order to develop information useful in determinations of genuineness, integrity, security, origin, validity of date, or for restoration of mutilated or obliterated matter.

(3) Specialized document photography and preparation of photographic exhibits to be used for court demonstration purposes, or supervision of such work.

For GS–9, the applicant must have had in his 2 years of specialized experience at least 1 year of the type indicated under (1) above and must have demonstrated the ability to perform moderately difficult and responsible work under general supervision.

For GS–11, the applicant must have a knowledge of all types of specialized experience listed above and must have demonstrated the ability to perform difficult work under only general supervision. The experience must show the ability to present findings and conclusions in written reports and in testimony or oral presentations before boards, commissions, courts, or other judicial bodies and to defend them under cross-examination.

For GS–12, the applicant must have a thorough working knowledge of all types of specialized experience listed above in addition to the qualifications indicated for GS–11.

For GS–13 and above, in addition, the applicant must have demonstrated supervisory capability or outstanding competence in the successful solution of very complex and difficult problems.

Quality of experience

For eligibility at GS–7 through GS–11, applicants must have had at least 6 months of specialized experience comparable in difficulty and responsibility to the next lower grade in the Federal service, or 1 year comparable to the second lower grade in the Federal service. For eligibility at GS–12 and above, applicants must have had at least 1 year of specialized experience comparable in difficulty and responsibility to the next lower grade in the Federal service.

Personal characteristics

Applicants should have mental alertness and analytic ability, resourcefulness and imagination, power of rapid and intelligent observation, ability to distinguish between similar forms and interpret small detail, capacity of sustained concentration, thoroughness and accuracy in work, integrity and honesty, willingness to accept responsibility for results of examinations, and ability to express findings and conclusions clearly and objectively both in written reports and oral presentations and to defend them under direct and cross-examination.

Substitution of education

Education in a college, university, vocational or technical school above the high school level which included an average of 6 semester hours (or its equivalent) per year in the physical and biological sciences, graphic arts, police science, criminology and/or law may be substituted for general experience at the rate of 1 year of study for 9 months of experience, up to a maximum of 4 years of study for 3 years of general experience. There is no substitution of education for specialized experience.

Physical requirements

See part II, Physical Requirements, paragraph 3. In addition, all applicants must be able to distinguish shades of colors and must possess emotional and mental stability.

PHYSICAL SCIENCE STUDENT TRAINEE SERIES **GS-1399**

Student Trainee (Appropriate Specialty) GS-2, 3, 4, 5

The qualification standard appearing under the General Student Trainee Series, GS-099-0, is to be used for these positions.

Librarian

Administrative Librarian

Supervisory Librarian

Library Director

(with specializations as appropriate)
Grades GS-7/15

Librarian Trainee

(Special provision at GS-5)

DESCRIPTION OF WORK

Positions involve work that primarily requires a full professional knowledge of the theories, principles, and techniques of librarianship. An inherent requirement of these positions is a knowledge of literature resources. Such work is concerned with the collection, organization, preservation, and retrieval of recorded knowledge in printed, written, audio-visual, film, wax, near-print methods, magnetic tape, or other media. Typical library functions include one or more of the following: selection, acquisition, cataloging and classification of materials, bibliographic and readers' advisory services, reference and literature searching services, library management and systems planning, or the development and strengthening of library service. Some positions may involve work in connection with the development of information retrieval systems.

SPECIALIZATIONS

Since many libraries are highly specialized, the work often lies chiefly in one subject-matter field, or closely related subject areas. To serve subject specialists who are the principal users of these libraries, some librarians require a knowledge of a specialized subject or field of endeavor. Such subject-matter knowledge typically covers a broad field, rather than a deep subject knowledge and competence related to a specific discipline or a full knowledge of the state of the art. Because materials in libraries are often in foreign languages, some librarians also must have a proficient knowledge of one or more foreign languages.

To provide qualified personnel for librarian positions requiring knowledge of a subject-matter field and/or proficient knowledge of several foreign languages, the following specializations are authorized:

Subject-matter specializations

Biological Sciences	Education
Medical Sciences	Fine Arts
Physical Sciences	Humanities
Social Sciences	Law
Business and Industry	Music
Engineering	

Foreign language specializations

Germanic	Slavic
Oriental	Arabic
Romance	

EXPERIENCE AND EDUCATION REQUIREMENTS

All librarians must meet the requirements for professional education in library science or possess equivalent experience as shown in IA, IB, IC or IIA, below. The usual way of entering the profession is to qualify at grade GS-9 on the basis of a master's degree in library science. However, it is possible to qualify for entrance at the GS-7 level on other bases as indicated.

For Librarian (appropriate specialization) positions all candidates must also meet requirements which are directly related to the subject matter or language of the specialization. These requirements are in addition to the basic professional library science requirements which apply to all positions. However, these requirements may be included within, or may be supplemental to, those specified for all positions at GS-7 and GS-9. The basic specialized subject-matter or language requirements for Librarian (appropriate specialization) positions are defined below at the grade GS-7 level.

I. *Requirements for Librarian positions, GS-7*

To qualify for all Librarian GS-7 positions, the applicant must meet the requirements specified in paragraphs A, B, or C below. (*Note:* Applicants who qualify under provisions of

paragraphs A or B will not be required to take a subject-matter test in library science.)

A. Completion of 1 full academic year of graduate study in library science in an accredited college or university, in addition to completion of all work required for a bachelor's degree; *or*

B. Completion of all requirements for a "5th-year" bachelor's degree in library science. *In addition*, the applicant must have had at least 1 year of library experience which included the performance of duties in one or more functional areas of librarianship at the GS–5 or higher grade level; *or*

C. A total, in some combination, of not less than 5 years of college-level education, training, and/or experience. To qualify on this basis, the applicant must establish conclusively that the education, training, and/or experience has provided a knowledge and understanding of the theories, principles, and techniques of professional librarianship; a knowledge of literature resources; and the knowledges and abilities essential for providing effective library services. Under this provision:

(1) Applicants must pass a subject-matter test in library science.

(2) If the applicant qualifies on the basis of a college level education, he must have had at least 1 year of library experience comparable in difficulty and responsibility to that of a GS–5 or higher level) library technician, technical information specialist, or subject-matter specialist (e.g., a chemist) performing library services.

(3) If the applicant qualifies on the basis of experience alone, with no college level education or training, he must have had at least 2 years of library experience comparable in difficulty and responsibility to that of a GS–5 (or higher level) library technician.

(4) The applicant may qualify under any time and quality equivalent combinations of the requirements shown in paragraphs (2) and (3).

(5) For the purpose of evaluating education, a full year of study is defined as a minimum of 30 semester hours credit (or equivalent). Specialized training, e.g., training at a school for library technicians or through "in-house" courses, will be allowed appropriate credit depending upon its applicability and extent.

To qualify for Librarian (appropriate specialization) positions GS–7, the applicant must also possess specialized knowledges of a subject-matter field and/or proficiency in one or more foreign languages which are directly related to the positions being filled. When such knowledges *are required by the position*, the applicant's education or experience must have included or been supplemented by the requirements specified in one of the paragraphs below:

(a) A full 4-year course of study in an accredited college or university which meets all academic requirements for a bachelor's degree, and also (1) has included at least 24 semester hour credits in the specialized field for which the applicant is being considered, e.g., physical science, biological science, social science; *or* (2) has included any combination of subjects with at least 15 semester hour credits in a major subject (such as physics or chemistry) which is especially applicable to the position for which the applicant is being considered; *or*

(b) Completion of at least 24 semester hours of legal study in an accredited law school for positions primarily concerned with providing library services in law or legislative reference; *or*

(c) Four years of successful and pertinent experience of such nature and level to provide a knowledge of the basic principles, theories, practices, techniques, terminology and expressions of the appropriate discipline or subject-matter field;

an understanding of the standard methods, procedures, and techniques of research and analysis in the subject-matter field; ability to acquire additional information about the field and related fields; and some knowledge of literature resources in the field.

Such experience should be equivalent to that which would have been acquired through successful completion of a full 4-year curriculum in an accredited college or university with major study in appropriate subjects, or combination of subjects, as specified in item "(a)" above; or legal training as specified in item "(b)" above, *or*

(d) Any time equivalent combination of experience as described in item "(c)" with education as described in item "(a)" or "(b)" above.

(e) Demonstrated ability as shown by education or experience to read or translate information from one or more foreign languages into English.

II. *Requirements for Librarian positions, GS-9*

A. Completion of all requirements for a master's degree or 2 full academic years of graduate study in library science, in an accredited college or university, meets all requirements for Librarian positions, GS-9.

B. In addition to meeting one of the requirements for GS-7 (A, B, or C above) must have had professional *or* advanced experience *or* graduate study as follows:

(1) One year of professional experience in librarianship which included the performance, supervision, or administration of one or more major functional areas of librarianship (i.e., selection, acquisition, cataloging and classification of materials, bibliographic and readers' advisory services, reference and literature searching services, library management, systems planning, or development and strengthening of library services).

Some positions are highly specialized in one functional area, and may require that the advanced experience be in the appropriate function to qualify at these higher grade levels.

(2) One year of professional or advanced experience in the subject matter or language which has provided the applicant with the professional, technical, language, or other specialized knowledges and abilities required by the particular position for which he is being considered. Such experience may have been gained, e.g., as a specialized librarian; or as a subject specialist, professor or teacher, translator, technical writer or editor, literature searcher, indexer, or abstracter, etc., in the particular subject-matter and/or language area.

Graduate education in a subject-matter field which is especially applicable to the position, and provides knowledges required to perform the duties of the position, as follows:

(a) Completion of all requirements for a master's degree; *or*

(b) Two full academic years of graduate education.

III. *Requirements for Librarian positions, GS-11 and above*

A. In addition to meeting the requirements for GS-9 (either A or B) candidates must have had either:

(1) One year of professional experience in librarianship; *or*

(2) One year of professional or advanced experience in a subject-matter or language area appropriate to the position.

B. Completion of all the requirements for a doctoral degree (or equivalent) or 3 full academic years of graduate education in library science.

C. In addition to possessing professional education in library science (or equivalent experience) as required for entrance at

grades GS–7 or GS–9, candidates must have completed graduate study in a subject matter or language area appropriate to the position as follows:

(1) All requirements for a doctoral degree (Ph. D. or equivalent); *or*
(2) Three full academic years of graduate education.

IV. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 year of full-time graduate education.)

QUALITY OF EXPERIENCE

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

SUPERVISORY AND ADMINISTRATIVE POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

For positions concerned with administration, management, or direction of library programs candidates must meet all other requirements for the particular grade and also show that they possess the required administrative and/or managerial ability to perform successfully the duties of such positions. Education, training, or experience of the candidate should demonstrate, e.g., ability to manage or direct a library, group of libraries, or library system; ability to plan, organize, and direct the development and execution of library programs, policies, and procedures; abiiity to plan or conduct management studies, public relations and educational activities; ability to plan, develop and carry out administrative activities of the library or library system concerned with budget and finance, personnel, plant and equipment, etc.

BASIS OF RATING

All competitors who meet the education and experience requirements for GS–7 and above, who pass the written test in library science when required, will be rated based upon an evaluation of their experience and training in library work. The library science written test, when required, will be used for qualification purposes only.

EVALUATING EXPERIENCE AND TRAINING

In evaluating experience and training, consideration will be given to the type, level, and scope of experience relating directly to the particular position or positions under consideration, as indicated in the application, and to any additional pertinent information obtained from references, employees, associates and colleagues.

In evaluating experience for Librarians GS–13 through GS–15, specifically, primary consideration will be given to the extent to which applicants possess the following knowledges and abilities:

1. Understanding of the techniques and methods of library science.
2. Knowledge of a specific subject-matter field.
3. Ability to plan a library program to meet the needs of the agency.
4. Ability to carry out broad library programs.
5. Ability to plan and coordinate the work of assistants.
6. Ability to train and develop a staff.
7. Ability to maintain good working relationships with the staff and other associates.
8. Leadership in the field of library science.

NONQUALIFYING EXPERIENCE AND TRAINING

No credit will be given toward meeting the experience requirements for positions in this series for work in the following situations:

1. Work with collections of fiction, recreational or other reading material where no formal cataloging or classification of material is performed.

2. Experience in wholesale or retail bookstores, circulating fiction and club libraries, or hospital record departments.

3. Experience as a library page, as a library attendant or as a clerical worker, even though the duties included such work as charging and discharging books or typing catalog cards or orders for books and materials.

4. Nonprofessional work in a library on a part-time basis (e.g., military duty) or on a volunteer basis.

5. No credit will be given for training in the particular use of libraries and library facilities such as is given in orientation courses to college freshmen.

WRITTEN TESTS

Applicants for all grades who (1) have a master's degree or the required education in library science, or (2) have a 5th-year bachelor's degree in library science, will *not* be required to take a written test.

Applicants for *all grades* who qualify on the basis of experience alone or a combination of experience and education *must pass a subject-matter test* in library science. This written test is designed to measure the candidate's knowledge of the fundamentals underlying professional library science and his understanding of its methods and techniques and their applications to effective library science. Questions will be asked on facts, principles, applications, tools, practices, and theory of professional librarianship as found in a variety of libraries (e.g., book selection; cataloging and classification; reference and bibliography; circulation and related services).

When the subject-matter test is required it may not be waived in in-service placement actions except when (1) the employee was properly appointed as a qualified librarian and is currently serving in a GS–1410 librarian position, or (2) has previously served at least 6 months in a GS–1410 librarian position as a result of eligibility gained as a qualified librarian under an appropriate examination and is being reassigned to a librarian position. (*Note:* Individuals appointed as Librarian (Trainee) will be required to take the subject test for promotion to GS–7 when they do *not* possess or acquire the educational requirements specified in paragraphs A or B for grade GS–7.)

SPECIAL PROVISIONS

A. *For all librarian positions*

At GS–9 and above, Librarian positions concerned with acquisition, cataloging, or reference work are sometimes highly specialized. In filling such positions, consideration may be limited to those eligibles who have had experience in the appropriate specialization at a qualifying level of difficulty.

B. *For librarian positions requiring specialized subject or language knowledges*

In filling positions at any grade level which call for a knowledge of foreign languages or special subjects such as law, medicine, physical sciences, etc., selection *must* be made from among eligibles who are qualified in these special areas.

SPECIAL PROVISION FOR FILLING POSITIONS OF LIBRARIAN (TRAINEE), GS–5

This is a special provision which may be used when there is a shortage of candidates who are fully qualified for GS–7 level librarian or librarian (appropriate specialization) positions. This provision is included because of the reported dearth of fully-qualified librarians. It is intended for use in those situations where the Librarian (Trainee) can be expected to complete his/her education or training in library

science within a reasonable period of time, and thus meet requirements for librarian positions at the GS–7 level.

Under this provision, applicants for positions of Librarian (Trainee), GS–5 must meet the following requirements: completion of a full 4-year course of study in an accredited college or university which meets all academic requirements for a bachelor's degree, or equivalent experience.

—Qualification of candidates under this provision is demonstrated by eligibility on a civil service register, or an appropriate subject-matter register (e.g., the Chemist register for Librarian (Trainee) positions requiring some knowledge of chemistry). Appointing officers may request certification of eligible candidates with major study in a subject-matter field which is considered appropriate for the position being filled.

Individuals hired as Librarian (Trainee), GS–5, *may not* be employed or promoted to a position of Librarian GS–7 until they fully meet the requirement specified for GS–7 librarian positions.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2; in addition, applicants must possess emotional and mental stability.

LIBRARY TECHNICIAN SERIES [1] [2]

Library Aid GS–1/3

Library Technician GS–4/7

Supervisory Library Technician GS–4/9

DESCRIPTION OF WORK

Positions in this series constitute what is essentially a support occupation. Library Aids and Technicians work in libraries where they provide support and assistance to professional librarians. In the lower grades (GS–1 through 3) assignments frequently involve considerable clerical work and some manual labor. In the higher grades (GS–4 and above) assignments may be specialized or may involve supervisory or administrative responsibilities.

Positions in this series involve duties related to the following library functions: the mechanical preparation of library material; the physical upkeep of library material; care of shelves, files, and equipment; circulation work such as registering borrowers, explaining lending rules, reserving books for library users; acquisitions work such as ordering publications, preparation of book lists, routine correspondence; cataloging work such as making additions to serial shelf list and catalog records, temporary brief, or limited cataloging, processing added copies and new editions; answering factual or directional questions involving the use of standard reference tools and specific, readily available sources. When the library collection includes foreign language publications, positions may require ability to read or recognize identifying information (e.g., titles, authors, dates of publications) in one or more foreign languages. (For a more detailed discussion of duties performed by Library Aids and Technicians, see the classification standard for this series.)

EXPERIENCE AND TRAINING REQUIREMENTS

Applicants must have had general and specialized experience of the type described below, in the amounts indicated for each grade.

Grade	*General experience (years)*	*Specialized experience (years)*	*Total experience (years)*
GS–4	1	1	2
GS–5	1	2	3
GS–6	1	3	4
GS–7 and above	1	4	5

NOTE: For Supervisory positions, see the qualification standard in part III of this handbook for Supervisory Positions in General Schedule Occupations.

General experience is progressively responsible clerical or office work of any kind which has demonstrated the ability to perform satisfactorily at the grade level of the position. General experience may also include work involved in the physical handling of library materials provided this gave the applicant some general knowledge of library rules, regulations, and procedures.

Specialized experience is progressively responsible experience in a library which has included duties similar to those mentioned in the Description of Work paragraph above. Clerical work performed in a library (e.g., work classified to the Mail and File Series, GS–305, or to the Clerk-Typist Series, GS–322) may be credited as specialized experience provided the clerical work has demonstrated the applicant's ability to apply general library operating practices.

Excess specialized experience may be credited as general experience.

→*Supervisory positions*

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

QUALITY OF EXPERIENCE

For GS–4 positions, at least six months of the required specialized experience must have

[1] Qualification standard for Clerk, GS–300–1/3, are to be used for filling position of Library Aid GS–1/3.

[2] This standard has been approved by the Administrator of Veterans' Affairs for use within the Veterans Administration under the provisions of section 4105, title 38, U.S.C.

been at a level of difficulty comparable to grade GS–3 in the Federal service. For GS–5 positions, at least one year of the required specialized experience must have been comparable to grade GS–4. At GS–6 and above, at least one year of the required specialized experience must have been comparable to the next lower grade, or two years of the required specialized experience must have been comparable to the second lower grade.

For any grade level, the required amount of experience will not in itself be acceptable as final proof of qualification for a given grade level. The applicant's record of experience, education or training must show he has the ability to perform the duties and responsibilities of the position.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

For a maximum of three years of the required experience (one year of general plus two years of specialized experience) study successfully completed in a resident school or institution may be substituted as follows:

General experience only

Successfully completed study in a school above the high school level may be substituted for experience on the basis of one-half an academic year of study (i.e., 18 weeks of substantially full-time study, or 15 semester hours, or the equivalent in quarter or trimester hours) for six months of experience.

Specialized experience

1. For the first year of specialized experience, study successfully completed in a resident school above the high school level may be substituted at the rate of one-half an academic year of study for six months of specialized experience provided such study included subjects closely related to the position being filled, e.g., in library science, in business administration, or training in office routines, or in a subject field appropriate for the library in which the position is located. A full 2-year course of study may be substituted for two years of the required experience (one year general plus one year specialized) and is fully qualifying for the GS–4 grade level.

2. For the second year of specialized experience, study of the quality described in paragraph 1 above may be substituted at the rate of one academic year of study for six months of specialized experience. Therefore, a full 4-year course of this type of study may be substituted for a maximum of three years of the required experience (one year of general plus two years of specialized experience) and is fully qualifying for the GS–5 grade level.

3. Study in library science courses completed in a resident institution above high school level may be substituted for a maximum of two years of specialized experience on the basis of three semester hours of library science for three months of experience. Substitution on the same basis may also be made for the general experience.

Education and training other than that outlined above, e.g., specialized training as a library aid or technician in manpower development programs, at a school for library technicians, or through inhouse courses, will be allowed appropriate credit, depending upon its applicability and extent.

No substitution may be made for the required supervisory experience or for the additional specialized experience required above the GS–5 level.

NOTE: "School above the high school level" means an educational institution (e.g., business or commercial school or college, a secretarial school, a junior college, or a college or university) for which high school graduation or the equivalent is prerequisite and in which the applicant successfully completed study which was not primarily limited to courses in typing and/or stenography.

For the item under "General experience only" and items 1 and 2 under Specialized experience, education in amounts less than one-half of an academic year are not substitutable for experience. One academic year consists of approximately 36 weeks of substantially full-time study, or 30 semester

(TS 145)
April 1973
Reprinted without change
December 1975 (TS 156)

hours, or the equivalent. Semester hours gained in part-time study may be credited at the rate of ½ year for each 15 semester hours (or the equivalent in quarter or trimester hours).

Substantially full-time study in the case of business and commercial schools is the equivalent of at least 20 classroom hours of instruction per week.

WRITTEN TEST

For competitive appointments at GS–4, a written test is required. For competitive appointments at grades GS–1/3, follow the test requirements in the qualification standards for Clerk, GS–300–1/3. The written test should be waived for in-service placement actions at all grade levels.

BASIS OF RATING

➔ Applicants at grade GS–4 will be rated on the basis of their written test scores. Applicants at grade GS–5 and above will be rated on the basis of their experience and education.←

SELECTIVE PLACEMENT

At GS–5 and above, Library Technicians sometimes specialize in the performance of duties concerned with acquisition, cataloging, reference, circulation, or serials work; or may be required to have some familiarity with specialized terminology or ability to recognize identifying information on foreign language documents. In filling such positions, selection *may* be limited to those eligibles who have had experience in the appropriate work at a qualifying level of difficulty.

SPECIAL REQUIREMENTS FOR POSITIONS INVOLVING PUBLIC CONTACTS

Some library aid or technician positions may involve substantial contact with others. Duties performed require a clear speaking voice, tact, courtesy, and capacity for effective public contacts. In filling such positions competitively and noncompetitively, appointing officers should assure themselves by reference checks, personal interviews, or other appropriate means that applicants possess these qualities to the degree necessary for satisfactory performance of the duties of such positions.

SUGGESTIONS FOR EVALUATING EXPERIENCE

(1) For a position requiring specialized experience in a particular function, such as cataloging, experience gained in cataloging titles being added to the collection would be ranked as top level experience. Experience gained in filing catalog cards would be ranked at a lower level, or nonqualifying, depending upon the requirements of the job.

(2) For a position requiring the ability to identify and record titles *in foreign languages*, experience gained in searching for publications in the particular foreign languages required by the position would be ranked as top level experience. Experience gained in similar processing functions not requiring foreign language ability would be rated as nonqualifying.

(3) For a position requiring familiarity with legal terminology, content and classification scheme of a law library, experience gained in searching duties in a legal collection would be ranked as top level experience. Experience gained in searching duties in a general collection including some legal publications probably would be ranked at a lower level depending upon the extent of the legal collection.

(4) Outside education or in-house training related to the requirements of the position would be ranked higher than other qualifying education, e.g., education or training in library work directly related to the position would be ranked higher than education or training in administrative work.

➔ It is suggested, especially in evaluating

candidates for in-service placement, that information be secured from former supervisors to elicit information as to demonstrated abilities, type of work experience, and past responsibilities. Other things being equal, the greatest credit should be given to those with the broadest experience and to those who demonstrate the most potential for advancement.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2.

TECHNICAL INFORMATION SERVICES SERIES

Technical Information Specialist

Supervisory Technical Information Specialist

Technical Information Officer

(appropriate specialization)

GS–5/15

SPECIALIZATIONS

The subject-matter knowledge for the Technical Information Specialist typically covers a broad field, rather than a deep subject knowledge and competence related to a specific discipline or field of interest, or a full knowledge of the state of the art. Some positions require foreign language proficiency to read documents published in languages other than English. The following specializations are authorized:

Subject specializations

Biological Sciences	Education
Medical Sciences	Fine Arts
Physical Sciences	Humanities
Social Sciences	Law
Business and Industry	Music
Engineering	

Foreign language specializations

Romance	Oriental
Slavic	Arabic
Germanic	

DESCRIPTION OF WORK

Positions involve work concerned with analyzing and transmitting the intellectual content of scientific, technological, or other specialized information. The specialists perform a variety of functions, or the work may be specialized in one functional area. Duties include acquisition, analysis of subject content of the documents acquired, indexing and preparation of abstracts or extracts. Some positions involve responsibility for terminology control, such as development of thesauri, lists of descriptors, subject heading lists, etc. Other employees analyze questions from users and perform literature searches; they prepare replies in the form of documents, bibliographies, or specific answers or units of information. Also included are duties and responsibilities involved in the direction, administration, or coordination of technical information services.

Some assignments include the application of specific techniques or the performance of limited aspects of the work of the professional librarian. These employees have knowledge of a professional, technical, or other specialized subject matter, and, in most cases, are taught the required library techniques on the job.

Some assignments require understanding and application of the special techniques, methods, and devices of a semi- or fully-automated documentation system.

BASIC REQUIREMENTS

For grade GS–5—

As a basic requirement, applicants must have education or experience as described under A, B, or C below.

A. A full 4-year course of study in an accredited college or university which meets all academic requirements for a bachelor's degree, and (1) which has included at least 24 semester hour credits in the physical sciences, biological sciences, social sciences, or other specialized subject-matter field, for which the applicant is being considered; or (2) in any combination of subjects which included at least 15 semester hour credits in a major subject (such as physics or chemistry) which is especially applicable to the position for which the applicant is being considered.

B. Four years of successful and pertinent experience of such nature and level to provide (1) a knowledge of the basic principles, theories, practices, techniques, terminology and expressions of a discipline or subject-matter field; an understanding of the standard methods, procedures, and techniques of research and analysis in the subject-matter field; ability to acquire additional information about the field and related fields; and some knowledge of literature resources in the field; and, where appropriate, (2) ability to read and comprehend nontechnical material in one or more foreign languages.

Such experience should be equivalent to that which would have been acquired through successful completion of a full 4-year curriculum in an accredited college or university with major study in appropriate subjects, or combination of subjects, as specified in item "A" above.

C. Any time equivalent combination of experience as described in item "B" with education as described in item "A."

For grades GS-7 and above—

In addition to meeting the experience or education requirements for GS-5, applicants for higher grades must have the amount and kind of advanced experience indicated below:

Grade:	Years of advanced experience
GS-7	1
GS-9	2
GS-11/15	3

Advanced experience consists of the performance of work which has provided the applicant with the professional, technical, language, or other specialized knowledges and abilities to perform the work of the particular position for which he is being considered. The work experience should demonstrate the applicant's capacity:

(a) to perform, supervise, or direct one or more of the functional areas of work covered by this series, e.g., indexing, preparing abstracts, performing literature searches, preparing bibliographies, developing thesauri or lists of descriptors, etc.; or

(b) to acquire an understanding of abstract ideas and theoretical concepts; to keep informed and recognize changes, advancements and new developments in the particular field; to recognize and understand subtle variations and deviations from standard practices or those which are significant from a research point of view; to understand and recognize the co-relationship of information in related fields; to make refined observations and to recognize or interpret scientific implications; to learn about current research efforts in the area of concern; to keep abreast of new methods or techniques, new equipment or systems; to maintain up-to-date information on the state of the art; and/or

(c) to read or translate material in two or more foreign languages, requiring a specialized vocabulary (e.g., technical, legal, scientific, or other subjects of comparable difficulty) and knowledge and comprehension of the subject matter.

Advanced experience may have been gained in positions requiring substantial subject-matter knowledge of the field(s) and/or foreign languages involved such as:

a. Technical Information Specialist (such as indexer, abstracter, literature searcher, bibliographer);
b. Librarian;
c. Technical Writer or Editor;
d. Intelligence Specialist;
e. Translator;
f. Professor, teacher, instructor of college level courses;
g. Subject-matter specialist (such as chemist, biologist, psychologist, engineer, attorney, etc.).

SUBSTITUTION OF EDUCATION FOR ADVANCED EXPERIENCE

Full-time* graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For 1 year of advanced experience.*—One full academic year of graduate education in a subject field directly applicable to the position. (This amount and kind of education meets all the requirements for grade (GS-7.)

*Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.

b. *For 2 years of advanced experience.*—Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education, which is in a subject field directly applicable to the position. (This amount and kind of education meets all the requirements for grade GS–9.)

c. *For 3 years of advanced experience.*—Completion of all requirements for a doctoral degree (Ph. D., or M.D. or equivalent, or 3 full academic years of graduate education, which is in a subject field directly applicable to the position. (This amount and kind of education meets all the requirements for grade GS–11.)

d. *Alternate requirements.*—

(1) Superior academic achievement at the baccalaureate level is qualifying at grade GS–7. The pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

(2) Completion of a total of at least 6 years of legal and pre-legal education which meets all the requirements for an LL.B. or J.D. degree will provide eligibility in full at grade GS–9 for positions requiring legal knowledges.

LEVEL AND QUALITY OF EXPERIENCE

For grades GS–11 and below, at least 6 months of the required advanced experience must have been at a level of difficulty comparable to that of the next lower grade, or 1 year must have been at a level of difficulty comparable at least to that of the second lower grade in the Federal service. For grades GS–12 and above, at least 1 year of the required advanced experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

For any grade, the required amount of experience will not in itself be accepted as proof of qualification for a position. The quality of experience, rather than the length of time employed, will be given primary consideration. The applicant's total education and experience must give positive evidence of ability to perform adequately the duties of the particular position for which he is rated eligible.

When education is combined with experience in order to meet length of experience required for any given grade, the applicant must have had the quality of experience appropriate for that grade.

SUPERVISORY AND OFFICER POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

For "technical information officer" positions, candidates must meet all other requirements for the grade of the position and also show that they possess administrative and managerial ability. Typically, at higher grade levels, management responsibilities increase and there is less preoccupation with direct line supervision of detailed technical information services work. Candidates for "officer" positions must have demonstrated, for example, the ability to perform successfully duties such as planning, organizing, directing, coordinating, or developing programs, work methods, and procedures; planning or conducting management studies; estimating requirements for staff and supplies; and coordinating activities among different units.

WRITTEN TEST

No written test is required for positions above grade GS–7 for competitive or in-service placement actions.

Competitive appointments to grades GS–5 and GS–7 will be made on the basis of selective certification from the current register resulting from the Federal Service Entrance Examination. Where scientific and technical subject-matter knowledge is required, an appropriate register which is currently in existence will be used.

BASIS OF RATING

Applicants for grades GS–9 and above will be rated based on an evaluation of the applicants' experience, education, and training.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

Archivist GS-5/15

DESCRIPTION OF WORK

Archivists in the Federal service analyze and evaluate public records to determine their continuing values and to make recommendations or decisions regarding their ultimate disposition. They study the history of the organizations which produced the documents, or the functions to which the documents relate and employ this knowledge in (1) determining the organizational or functional relationships of the records, (2) describing the arrangement and content of records, and (3) conducting documentary research. They provide advice and assistance to the various departments and agencies of Government in the identification of records of enduring value and negotiate for the transfer of such records into archival custody. Archivists also provide advice, assistance and consultative service to public administrators, scholars and others regarding the resources of the archival collection and engage in the preparation of definitive publications of important archival records for the use of scholars, educators and the general public.

BASIC REQUIREMENTS FOR ALL GRADES

A. A full 4-year course in an accredited college or university which has included or been supplemented by 18 semester hours in the history of the United States or in American political science or government or a combination of these, and 12 semester hours in any one or any combination of the following: history, American civilization, economics, political science, public administration or government, or;

B. Courses in an accredited college or university as described in A above, plus additional appropriate education or experience which, when combined, have provided the candidate with the substantial equivalent of A above.

GS-5.—The basic requirements which apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience must have been in archival science, or in a directly related field of work such as history that involved the collection, appraisal, analysis, or synthesis of information having historical or archival values. The following are illustrative of kinds of experience which may be accepted as meeting the professional experience requirements: (1) experience as an archivist in Federal, State, church, business or other archives, or in manuscript depositories, (2) experience of an archival nature which has involved research in archival science, or in a directly related field such as history, government, economics, political science, international relations, or international law.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a

level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

EVALUATION OF EDUCATION AND EXPERIENCE

A. *Education.*—The evaluation of educational preparation requires particular care. In general, those courses in U.S. history or American government which are directly relevant to the subject matter of the archival work make a greater contribution to the breadth and depth of background knowledge requisite to successful performance and should be given higher

quality credit than courses in such ancillary subjects as the history of American art or literature. The following are illustrative: (1) courses which have dealt directly and in depth with the history of the United States, the North American Colonies or regions, sections or States within the United States, (2) courses which have dealt in depth with the history of any important sector of the life, thought, culture and activity of the nation such as those relating to the development of economic, political, agricultural, legal or other institutions, political parties, international relations and foreign affairs, or constitutional history and law, or (3) courses relating to the organization of government including the theory, development, operation or effect of such governmental organization at the Federal, State or local levels.

In addition to courses of the kind described above, some candidates may present academic preparation which has included substantive instruction in historiography or historical research methodology, or in the theory, principles and methodology of archival science. Such applicants possess a substantial academic base for future professional growth. Such additional preparation should be taken into account in the appraisal of the overall breadth and the quality of the candidate's education.

B. *Experience.*—Evaluation of the kind and level of professional work experience possessed by a candidate should be based on (1) the extent to which the experience has demonstrated the applicant's ability to apply substantive professional knowledge to the solution of professional archival problems, (2) the level, scope and responsibility of the candidate's present and past positions, (3) his progressive advancement in the field, (4) the substance and merit of his publications, (5) membership and active participation in appropriate professional societies, and (6) any special recognition in the form of special honors, awards, etc.

In addition to the considerations outlined above the evaluation of candidates for archivist positions should also take into account the extent to which the applicant has demonstrated possession of the following: (1) ability to keep long-term projects advancing and in perspective, (2) capacity for making sound and discriminating value judgments, and ability to write well and concisely.

The nature of this occupation is such that, where possible, evaluation of an applicant's education and experience background should be made by, or in consultation with archivists of high standing in their field, who have had some training in examining qualifications and appraising the significance of professional archival work. To aid in this evaluation applicants should furnish concise summaries of the substance of their course work as well as course titles. They should also provide clear and concise information about their professional work assignments which describe the nature of the archival problems they have been called upon to solve and their contribution to the problem-solving process.

QUALIFICATION INQUIRIES

Confidential inquiries, including contacts with applicant's present and former professors, supervisors and associates may be made to obtain further information concerning his professional and personal qualifications and general suitability for these positions.

PRE-EMPLOYMENT INTERVIEWS

In addition to substantive archival knowledges, some positions in this occupation require considerable skill in personal relationships and public contact work. Applicants may be required to appear for a pre-employment interview.

WRITTEN TEST

A written test is required for grades GS–5 and GS–7. It should be waived for in-service placement actions, but not for appointments outside the register.

A written test is not required for grades GS–9 and above.

BASIS OF RATING

Applicants for grades GS–5 and GS–7 will be rated on a scale of 100 based on the written test score and an evaluation of the applicants' experience, education and training.

Applicants for grades GS–9 and above will be rated on a scale of 100 based on an evaluation of the applicants' experience, education and training.

SELECTIVE PLACEMENT

At full performance levels all archivist positions share the requirement for a good knowledge of (1) the theory, principles and techniques of archival science, (2) historical research methodology, and (3) U.S. history. However, because of the range of subject matters with which archivist positions may be concerned, and the variety of governmental activities and operations with which they may become involved, some positions in this occupation may require additional specialized subject-matter knowledges such as a knowledge of economics or of a foreign language. Such additional specialized requirements may vary significantly from position to position. In the interest of providing maximum flexibility in matching the qualifications possessed by archivists to the actual requirements of individual jobs, each situation should be evaluated on its individual merits.

Some candidates may have taken additional courses in subject-matter fields particularly germane to the specialized demands of the individual position to be filled, or to the target position in the career ladder. Such additional preparation should be taken into account in filling particular specialized positions. For those positions which require recruitment or appointment of persons with a background or experience in one or more specialized areas consideration may be limited to those having intensive knowledge or experience in the specialized areas involved.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2. In addition, applicants must possess emotional and mental stability.

ARCHIVES TECHNICIAN SERIES*

Archives Aid GS–1/3**
Archives Technician GS–4/11
Supervisory Archives Technician GS–5/11
Archives Specialist GS–9/15

DESCRIPTION OF WORK

Archives Aids, Archives Technicians, and Supervisory Archives Technicians perform nonprofessional or technical archival work in accessioning, keeping, safeguarding, and providing for the use of material kept in Federal Records Centers, the National Archives, Presidential Libraries, and other Federal records and manuscript depositories.

Archives Aids, Archives Technicians, and Supervisory Archives Technicians provide support to Archivists and Archives Specialists in one or more phases of the operational program of the records depository or archives, or by assisting in a functional area of archival work, by performing or supervising technical tasks such as: (1) Accession, allocation, and disposal; (2) arrangement, description, and identification; (3) preservation, rehabilitation, and maintenance; and (4) reference service and research.

Archives Specialists perform work that is concerned with the general supervision, direction, management, and administration of various phases of the operational program of a Federal Records Center, a part of the National Archives, or other Federal records and manuscript depositories.

Some assignments involve work that requires the application of a knowledge of specific kinds of broad categories or bodies of records; e.g., those pertaining to specific organizations, subject-matter areas of archival work, or periods of history. Other assignments, in which the records consist of maps, charts, audiovisual material, plans, blueprints, magnetic tapes, etc., require a familiarity with the material and with the specific methods, procedures, practices, and techniques used to keep such records.

* This qualification standard supersedes the standard for the GS–1421, Archives Assistant Series which was issued in April 1957.

**The qualification standard for Clerk, GS–300–1/3 is to be used in filling Archives Aid GS–1/3 positions.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Candidates for the various grades must meet the experience requirements specified below.

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-4	1	1	2
GS-5	1	2	3
GS-6	1	3	4
GS-7	1	4	5
GS-8 and above	1	5	6

General experience

Progressively responsible experience gained in any area of clerical or office work, which either by itself or in combination with other experience, training and/or education, provides—

- a general knowledge of the procedures and practices that are applied in a prescribed system of clerical, library, or storage operations;
- a basic knowledge of how records, files, or library materials are maintained, serviced, and used; *and*
- an awareness of the general relationships that exist between and among records or sources of information.

General experience may also include work that involved the physical handling of records, library material, etc., provided it gave the candidate a general knowledge of library, record-keeping, or archival rules, regulations, and procedures.

Specialized experience

Progressively responsible experience of a clerical, technical, supervisory, or administrative nature gained in archival work, or in a directly related occupation that involved the use of methods, procedures, techniques, and practices applicable to archival work; e.g., as file clerk, library aid, etc.

Specialized experience also includes such work as that involved in the conduct and preparation

of studies, reports, and similar material relating to the accession, maintenance, use, and disposal of records; e.g., those in a records center, archives, Presidential Library, or similar records or manuscript depository.

Commensurate with the grade level of the position for which the candidate is being considered, this experience must provide—

- a basic understanding of the methods, procedures, and practices that are applied in archival work;
- a knowledge of the relationships that exist between and among different types of records; *and, as required,*
- a subject-matter knowledge of a specific type or area of archival work.

Clerical work (e.g., mail and file, military personnel, civilian personnel), related technical support work (e.g., library technician), and work performed in some administrative, managerial, supervisory, or staff positions (e.g., management analysis) may also be evaluated as specialized experience, provided this experience required an understanding and knowledge of archival methods, procedures, and techniques, or a knowledge of the methods and procedures used to manage, direct, and administer archival work.

Excess specialized experience may be used to meet the general experience requirements.

Supervisory positions

For supervisory positions, see the qualification standard for Supervisors of Work Classifiable at One-Grade Intervals, in part III of this handbook.

QUALITY OF EXPERIENCE

For GS–4, candidates must have had at least 6 months of *specialized experience* comparable in level of difficulty and complexity to that of GS–3 in the Federal service.

For GS–5 and higher grades, candidates must have had at least 1 year of *specialized experience* comparable to that of the next lower grade in the Federal service, or 2 years of such experience comparable to the second lower grade in the Federal service.

For some positions at GS–6 and higher grades, when the duties require a knowledge of a specific functional area of archival work (e.g., accessioning), a subject-matter knowledge of a certain type or class of records (e.g., cartographic), or a specific area of archival work (e.g., military); at least 1 year of the *specialized experience* must have been in the area of assignment or functional area of work involved.

For positions at any grade level, the required amount of experience will not in itself be accepted as proof that a candidate is qualified. The candidate's record of education, training, and experience must clearly show that he possesses the knowledges, skills, and abilities needed to perform the duties of the position for which he is being considered.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

For a maximum of 3 years of the required experience (1 year of general plus 2 years of specialized experience) study successfully completed in a resident school or institution may be substituted at the rate of one-half academic year of study (i.e., 18 weeks of substantially full-time study, or 15 semester hours, or equivalent) for 6 months of experience as follows:

General experience

Successfully completed study in a school above the high school level may be substituted for general experience.

Specialized experience

Successfully completed study in a school above the high school level that included an average of 6 semester hours (or the equivalent) an academic year in subjects related to archival work may be substituted for specialized experience. Acceptable subjects include archival science, library science, economics, business administration, law, history, government and political science, public or personnel administration, office methods and procedures, or subject-matter areas such as cartography, that provides a base of knowledge applicable to archival work.

ARCHIVES TECHNICIAN SERIES

Education and training other than that outlined above that are of particular value in meeting the requirements of specialized positions; e.g., pertinent specialized training in manpower development programs or in "in-house" training programs, will be evaluated on the basis of its applicability in relation to the requirements of the position being filled.

Education may not be substituted in full for experience in meeting the requirements of positions above grade GS–5.

TRAINING

Appropriate credit will be given for pertinent training, gained either in special courses or in formalized training programs, on the basis of its extent and applicability as measured against the requirements of the specific type and grade level of position for which the candidate is being considered.

SELECTIVE PLACEMENT

Some Archives Technician positions require special competency in a subject matter, technological, functional, or operational area of archival work. For example, the work may involve the application of a detailed knowledge of specific kinds of records, such as civilian or military personnel records. Specific knowledges and techniques are applied in keeping and servicing collections of maps and charts. Some records are written in a foreign language and require the application of sufficient knowledge of that language to enable the Archives Technician, Supervisory Archives Technician, or Archives Specialist to understand the records. A few positions require the ability to deal effectively with the general public.

In such cases, consideration for these positions may be limited to those candidates whose records show evidence that they have acquired the competency required to perform the duties of the particular position for which they are being considered.

WRITTEN TEST

A written test is required for competitive appointments to positions at the GS–4 grade level.

A written test may be required for competitive appointment at grade GS–5.

A written test is not required for competitive appointments at grade GS–6 and above.

Written test requirements should be waived for in-service placement actions but not for appointments outside of the register.

BASIS OF RATING

Competitors for positions at the GS–4 grade level will be rated on a scale of 100 on the basis of the written test.

Competitors for positions at the GS–5 and higher grade levels will be rated on the basis of an evaluation of their experience, education, training, demonstrated technical competence, and personal qualifications relevant to the requirements of the specific position for which they are being considered.

Some positions at grade GS–5 may be filled from registers established under a broadband examining plan. In this event, the rating will include the scores made on the written test required in that plan in addition to the evaluation of education, experience, and training. The information for evaluating experience, education, and training will be taken from the application form and any additional information which may be obtained through supplemental forms and reference inquiries.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2.

APPRAISING CANDIDATE'S QUALIFICATIONS

Archives Aids usually have acquired, or acquire on the job, a base of knowledges and skills in clerical, recordkeeping, or lower grade archival work that provides a good general understanding of how records are kept, stored,

and used. This is usually limited to one record system, or to general support activities, and additional knowledges and skills are developed on the job. The technical knowledges, abilities, and skills applied in performing archival work, and particularly those applied by Archives Technicians, Supervisory Archives Technicians, and Archives Specialists at the higher grade levels, are unique to this occupation and are almost always acquired on the job.

The technical and quasi-professional knowledges and skills required are most frequently acquired in a particular area of assignment, functional area of work, or segment or phase of a recordkeeping or archival activity, and pertain to a specific type of activity (functional area of work, specific bodies of records, etc.). When gained at the lower grade levels, this, at best, involves a few types of records, closely related record systems, and the relatively routine handling of records. As the difficulty of the work increases, more records are involved, the record systems differ from one another, and more activities are involved, or the work becomes highly specialized. This requires the application of a more refined and intensive knowledge of the records and record systems, or of the methods, procedures, practices, and techniques applied. Essentially what is involved is the application of a more precise and intimate knowledge of the records, their contents, and the systems used to keep the records. Thus, the degree to which a candidate is familiar with the pertinent records and record systems is one of the best predictors of success for any given technical or quasi-professional assignment. This is measured best by a careful appraisal of the candidate's demonstrated ability to perform the work; i.e., his experience on the job.

In determining the relevance and appropriateness of substitutable education, the course of study and course work should be evaluated more in relation to the extent to which it provides a base for further on-the-job training than to the extent to which it provides knowledges and skills that can be applied directly to the work. It is particularly important to make this kind of an appraisal where the candidate has undergraduate college training, but where the course of study has not emphasized history. Certain combinations of course work; e.g., business administration and history, government or political science and history, and course work in specific subjects; e.g., cartography, data processing, physical geography, are particularly valuable for some types of archival work.

A different set of values is applied where the training and experience are being evaluated with regard to their relevancy for Archives Specialist positions. Here, the depth of knowledge acquired, the degree of familiarity with specific types of records and record systems, or the ability to apply administrative and supervisory knowledges and skills in archival work may be the most important factor to consider in evaluating a candidate's qualifications.

Actuary GS–5/15

DESCRIPTION OF WORK

Actuaries perform professional work in which they make use of mathematics and statistics, a knowledge of the economy, and of sound financial and business methods. Their work relates statistical information on populations and their behavior to life, health, employment, and property risks and contingencies. From this information, insurance risks, premiums, and reserve funds for social insurance or annuity programs are developed. The actuaries also develop data to be used in projecting and planning the budget and operational needs of an insurance program.

BASIC REQUIREMENTS FOR ALL GRADES

For all grades

Candidates must have successfully completed one of the following requirements:

A. A full 4-year course in an accredited college or university leading to a bachelor's degree. This study must have included courses in mathematics totaling at least 24 semester hours. The courses in mathematics must have included differential and integral calculus and, in addition, one or more courses in mathematics for which these courses are prerequisite. Six semester hours in statistical theory and method may be substituted for 6 semester hours of the mathematics requirement.

B. Four years of progressive technical experience in actuarial support work or in mathematics, or an equivalent combination of education and experience. The experience or the combination of education and experience must have given the candidate an understanding of the field of mathematics, or of mathematics and statistics, comparable to that which would have been acquired through successful completion of a full 4-year college course as described in paragraph A above. This education and/or experience must have included or been supplemented by either (1) the successful completion of parts 1 and 2 of the actuarial examination given jointly by the Society of Actuaries and the Casualty Actuarial Society; or (2) at least 24 semester hours in mathematics and statistics as described in paragraph A.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, actuarial work.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	Minimum amount of professional experience in appropriate subject-matter fields (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research or analytical positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or analytical work of a creative or advanced scientific nature. b. The knowledge required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

BASIS OF RATING

The ranking of candidates is not based on length of experience, but on an evaluation of the scope and quality of each candidate's experience, education, success in passing the examinations of the Society of Actuaries or the Casualty Actuarial Society, and abilities and personal characteristics.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 8. In addition, candidates must possess emotional and mental stability.

GUIDE FOR EVALUATION OF QUALIFICATIONS

Evaluation of education

The nature and quality of the basic education is of most value in evaluating candidates at the entrance levels (GS–5 and GS–7) and to some extent at GS–9. Undergraduate training is of less significance at succeedingly higher levels as compared with experience. These aspects of education are important considerations in an evaluation.

The basic tool of the actuary is mathematics. The actuary applies mathematics to develop quantitative measures of information, or a logical presentation of a course or several courses of action expressed in mathematical terms. These are the bases for judgments and policy determinations.

The course content of the candidate's education in mathematics should be carefully evaluated in relation to the thoroughness of the grounding in calculus, probability, and statistics. Some schools offer specific courses in actuarial science at the undergraduate or graduate levels; these should be given due weight. In evaluating undergraduate or graduate education it is helpful to determine whether the candidate's interest and orientation in mathematics is directed to the application of mathematics to problem solving. From the standpoint of actuarial work, an intense interest in advanced theoretical mathematics is less desirable.

Courses in economics, finance, accounting, business and the liberal arts should be recognized as valuable. They provide a foundation for understanding, and for a broad approach to the analysis of, many problems which the actuary regularly faces.

Evaluation of abilities and personal characteristics

Personal characteristics go hand in hand with technical ability. The candidate should have the qualities of personal insight, lucidity, and persuasiveness that are necessary to success in the conduct of executive and management functions. The presence of these qualities is difficult to ascertain for positions at any level. It is most difficult to determine the qualities necessary for candidates in beginning level positions. However, some index to the character and personal qualifications can be obtained from a check of references, and a review of work records. The candidate's record of experience and education should be reviewed particularly for evidence that he possesses the following personal qualities, skills, or abilities. He need not show mastery of all of them, but should have them in sufficient degree to perform the work of the position for which he is being considered.

1. Analytical ability.
2. Ability to plan work.
3. Ability to write reports on technical problems.
4. Ability to speak clearly and convincingly.
5. Ability to deal tactfully and diplomatically with others.
6. Inquisitiveness and the ability to elicit information.
7. Ability to work under pressure such as time limitations or intense public interest.
8. Willingness to accept responsibility.

CONSIDERATIONS IN ESTABLISHING GRADE AND QUALITY LEVELS

The following considerations are offered as guides in determining the level and quality of a candidate's professional actuarial background:

1. In relation to the duties of the position applied for, the total background and experience of the candidate should show the progressive use of the technical principles and actuarial techniques.
2. Except at the beginning levels, the experience should have required the candidate to use initiative and judgment in choosing and using professional actuarial principles. At all levels qualifying experience should call for more than routine observation and recording of technical data. It should involve work that will enable the candidate to advance in his profession, and to develop and mature his professional judgment.
3. Actuarial work impinges on most areas of business, finance, and economic activities. In evaluating an actuary's experience it should be weighed in terms of its contribution to his understanding of the socio-economic environment in which he operates.
4. Work under the supervision or guidance of professional actuaries who can contribute to the professional development of a candidate should be recognized in the assignment of values.
5. In general, the candidate who has demonstrated more than a passing interest in the actuarial profession by furthering his professional development and augmenting his knowledge through extracurricular training and study, or through publication of

his studies, should be recognized in the assignment of values.

6. Recognition may be given assigned responsibility for supervising or reviewing the work of other actuaries, commensurate with the level of difficulty of the work.
7. Does the candidate's experience show:
   a. increasing independence of action;
   b. complexity or variety of assignments;
   c. increasing scope and importance of assignments?

   These represent progress and advancement in the profession.
8. Has the candidate had experience in public speaking?
9. Has the candidate had assignments which involved either giving testimony, or negotiating with others?

ACTUARIAL EXAMINATIONS

The written tests specified for candidates without required college courses are given jointly by the Society of Actuaries and the Casualty Actuarial Society. They are the first two parts of a 10-part test given as a requirement for Fellowship in the Society of Actuaries and of an 8-part test of the Casualty Actuarial Society. Part 1 is the General Mathematics Examination; part 2 is the Probability and Statistics Examination. The remaining parts of the written tests deal with more advanced aspects of the work of the actuarial profession.

In evaluating the qualifications of candidates, appropriate consideration should be given to success in passing the more advanced parts of the tests.

The preliminary examinations in mathematics and in probability and statistics are each 3-hour multiple-choice achievement examinations based on the material usually covered in standard mathematics courses through differential and integral calculus and in probability and statistics. The tests are usually given in the spring and the fall.

For sample questions and additional information on the examinations, inquiries may be addressed to—

Society of Actuaries
208 South La Salle Street
Chicago, Illinois 60604

or

Casualty Actuarial Society
200 East 42nd Street
New York, New York 10017

OPERATIONS RESEARCH SERIES

Operations Research Analyst GS–5/15

DESCRIPTION OF WORK

Operations research analysts perform professional and scientific work requiring the design, development and adaptation of mathematical, statistical, and other scientific methods to analyze operational problems of decision-makers. Operations research analysts develop and conduct analytic studies to provide advice and evaluations of the probable effects of alternative solutions to these problems. The primary requirement of the work is competence in the rigorous methods of scientific inquiry and analysis rather than in the subject matter of the problem.

Reference may be made to the classification standard for a more complete description of operations research methodology and the characteristics of the work.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements

Candidates must show successful completion of a full 4-year or longer curriculum in an accredited college or university leading to a bachelor's or higher degree with a course of study that included 24 semester hours of coursework in any combination of the following: Operations research; mathematics; statistics; logic; and subject-matter courses which require substantial competence in mathematics or statistics.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, operations research.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research and creative positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when—

a. The position involves primarily *research*, creative or advanced scientific analytical work.
b. The knowledges required for the work are *typically and preferably* acquired through graduate study.
c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.

GS–12 Research and creative positions. Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria:
a. The position involves primarily research, creative or advanced scientific analytical work.
b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level.
c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

PROFESSIONAL EXPERIENCE REQUIREMENTS

Experience may have been gained in the performance of operations research studies or in the performance of research or analysis in any discipline or field to obtain new insight into phenomena and the understanding of relationships. Such experience must have involved the use of quantitative methods of analysis rather than purely descriptive methods. Experience must have demonstrated skill, knowledge and technical competence in the use of scientific and mathematical theories and principles applicable to operations research and to professional methods of scientific inquiry and analysis in the solution of research and systems analysis problems.

Such research and analysis must have involved extensive inquiry into or use of basic data, the structuring of problems for systematic analysis, the discovery of new facts, the adaptation or development of scientific techniques, the construction and use of analytical and mathematical models, the new interpretation of complex data, the formulation of recommendations for action based on such research or analysis, or the planning or directing of the foregoing activities.

For GS– 9—The work experience must have demonstrated a working knowledge of mathematical and statistical methods and techniques applicable to operations research. It must also have demonstrated skill in the investigation, treatment and analysis of basic data in preparing interpretative and analytical reports.

For GS–11—The work experience must have demonstrated that the applicant possesses initiative, resourcefulness and the ability to perform professional work in operations research of some difficulty and

responsibility. The work experience must also demonstrate the candidate's ability to conduct limited studies or single aspects of larger studies, to organize data collection, to select and apply appropriate methods of analysis and to evaluate findings and draw reliable conclusions.

For GS–12—The work experience must have demonstrated skill, knowledge and technical competence in the use of (a) scientific and mathematical theories and principles applicable to operations research, and (b) professional methods of scientific inquiry and analysis in the solution of difficult and complex research and/or systems analysis problems. Ability to prepare thorough and comprehensive reports or analytical studies relating to difficult problems must also be demonstrated.

For GS–13—Professional experience in or directly applicable to operations research which demonstrates that the applicant possesses a thorough understanding of scientific principles and theories underlying operations research and a wide knowledge of concepts, factors and conditions which influence the operations of complex systems. The experience must have demonstrated the applicant's ability in either (1) the organization, direction, and coordination of complicated and important analytic studies, or (2) marked technical competence and creativity in original scientific inquiry in developing new methods of analyses or new insight into relationships involved in complex operational systems.

For GS–14 and 15— Professional experience in or directly applicable to operations research which (1) demonstrates a thorough knowledge and understanding of the scientific principles and theories applicable to operations research, and (2) the implications of such analysis in providing management with new information and predictive advice concerning various alternative courses of action in resolving exceedingly complex operational system problems. Experience for positions at GS–14 and GS–15 must demonstrate—

(a) Skill and facility in the organization, direction, and coordination of complete and difficult analytic studies; and

(b) Exceptional technical competence in creative research or analysis of high calibre resulting in important contributions to the fundamental knowledge of the field; and

(c) Ability to conduct high-level consultative and advisory work in formulating analytic studies and programs and in presenting and carrying out far-reaching changes in major governmental programs, plans and policies.

CREATIVE OR OUTSTANDING RESEARCH

Where candidates show positive evidence that they have performed highly creative or outstanding research, which has led, or can lead to a major advance in a specific area of research, or to a major advance in the field of

operations research, they may be rated on this basis for highly demanding research positions which require similar abilities in order to perform the work. Candidates who meet this criterion may be rated eligible for the next higher grade above that for which they would normally be rated, provided they have not been rated at this higher grade on the basis of meeting the graduate study requirements.

To receive this rating, the work must have been creative in the sense that it developed a basic principle, concept, method, approach or technique (or provided a body of basic information) which opened the way for major advances in operations research.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for positions at GS–5 and GS–7

Evaluation of candidates is based largely on their academic career, with consideration also being given to any employment experience they may have had. In meeting the basic education requirement it should be noted that candidates are allowed credit for 24 hours in a combination of subjects areas without specific courses being required. When evaluating a candidate's academic record, however, consideration should be given to the extent to which the courses successfully completed contributed to his basic knowledge of operations research and scientific methods of research and analysis. Extra credit may be given for excess courses in operations research, and upper division mathematics, statistics and probability. The grades of the candidate in courses in operations research, mathematics and statistics which include those techniques commonly used in operations research and his relative class standing may also be considered in ranking.

Courses acceptable as operations research may be taken in various departments such as Business Administration, Engineering (usually Industrial Engineering), Economics, Mathematics, and Statistics. Courses designed to provide an introduction to operations research techniques and methodologies to problems of management, marketing, systems design and such other specialized fields are acceptable.

Illustrative of acceptable courses are the following:

> Engineering mechanics, physics (except descriptive or survey courses), econometrics, psychometrics, biometrics, experimental psychology, physical chemistry, industrial process analysis, quantitative analysis, managerial economics, computer science, measurement for management, mathematical models in social phenomena, or any course for which a course in mathematics or statistics is a prerequisite.

Courses in calculus, theory of probability, and statistics are highly desirable but have not been specified as necessary in the minimum educational requirements, because to do so would possibly exclude some candidates who would otherwise be well qualified. Candidates should have sufficient knowledge of applied mathematics to understand and utilize the fundamental concepts and techniques of operations research methods of analysis. Knowledge of the theory of probability and ability to use statistical and mathematical techniques of analysis based upon this theory is very important for anyone in the occupation. Thus, in evaluating qualifications of candidates, special weight should be given to possession of such knowledges.

In addition to evaluating the candidate's academic record, consideration should be given to such factors as his general reasoning ability, ability to make practical application of theoretical knowledge, ability to understand scientific

literature pertaining to operations research methodology and techniques, ability to write clear and accurate technical reports, and ability to cooperate with others in accomplishing his work.

Candidates for positions at GS–9 and above

For positions at these levels, evaluation of undergraduate college training is less important than the consideration of graduate training and professional work experience. The same factors that are used to evaluate the undergraduate academic record may also be used to evaluate the graduate record.

This occupation requires a high degree of competence in the rigorous methods of scientific inquiry and mathematical analysis. To maintain and develop such competence, training and education beyond that specified in the minimum educational requirement is needed. It is unlikely that such competence can be developed solely by routine on-the-job experience. Therefore, evidence of further study and personal development should be considered in determining quality of experience and ranking under promotion plans.

In evaluating candidates, consideration should be given to active membership in and presentations before professional organizations, technical publications, participation in seminars, awards, etc. Technical publications should be evaluated for the significance of their contribution to knowledge advancing the theories and methods of operations research.

The classification standard discusses the nature and level of responsibility of the work at various grade levels. It will accordingly be helpful in evaluating the candidate's experience.

Operations research has been performed by personnel from a wide spectrum of the physical and social sciences. It does not have a body of principles and laws peculiar to itself—it utilizes those associated with the known disciplines. As in most fields of the sciences, considerable emphasis is placed on a requirement for knowledge of mathematical and statistical techniques because of the frequency with which such techniques are used in developing and analyzing models. In general, an operations research analyst must become sufficiently conversant with the disciplines principally involved in the immediate study (physics, mathematics, engineering, economics, behavioral sciences, etc.) to be able to relate appropriate aspects of these fields to the solution of overall problems and to take full advantage of the specialized knowledge of subject-matter experts.

The following abilities are usually critical to operations research work at the full performance level:

1. Skill in devising new concepts or techniques in operations research or in adapting known techniques to the solution of unique and difficult problems.
2. Ability to think logically in determining the relevance of source material, in establishing procedures for obtaining pertinent data, and in drawing conclusions.
3. Ability to perform extensive inquiry into basic data to discover new facts or fundamental relationships.
4. Ability to develop analytical models to simulate operations through the use of mathematical techniques, and to use analytical models with critical judgment.
5. Ability to write concisely, to express thoughts clearly, and to develop ideas in logical sequence.
6. Ability to work as a team member.

BASIS OF RATING

No written examination is required. Candidates will be rated, on a scale of 100, on the extent and quality of their experience and training. Such ratings will be based upon candidates' statements in their applications and upon any additional information that may be secured by the Civil Service Commission.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in

General Schedule Occupations," in part III of this handbook.

SELECTIVE PLACEMENT

Operations research analysts of all types share in the requirements for knowledge of methods and techniques for scientific inquiry and analysis from a variety of disciplines, and for understanding of the problems of observing, recording, quantifying and measuring operational phenomena under various degrees of uncertainty. However, some positions in this series may require additional specialized knowledges.

Such specialized requirements may vary significantly from one position to another. To provide appropriate flexibility in the matching of individual analyst qualifications to particular assignments, selective placement procedures may be used where applicable.

Specialized knowledges which may be required in particular positions to a degree necessitating the use of selective certification are generally of two types:

1. Knowledge of particular specialized activities such as military strategy and tactics; transportation systems; weapons systems; logistic systems; information handling systems; manufacturing processes; medical research systems.
2. Highly developed knowledge of a particular methodology, technique or tool of analysis such as network flow theory or simulation.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2.

Mathematician GS–5/15

DESCRIPTION OF WORK

Mathematicians appointed to these positions will plan, direct, conduct or assist in the performance of scientific, analytical or developmental work or basic or applied research in the field of mathematics. Satisfactory performance of the duties of these positions requires full professional education and training in the field of mathematics, including a thorough understanding of the theories, principles and concepts upon which mathematics is based; a good working knowledge of mathematical terminology, units and methods of measurement, techniques and practices, standard reference texts, and mathematical instruments, devices and aids; and the ability to apply this knowledge in the solution of problems in a variety of subject-matter areas. The difficulty of the work performed and the degree of responsibility assumed will vary and be commensurate with the grade of the position.

BASIC REQUIREMENTS FOR ALL GRADES

For all grades, candidates must show successful completion of the requirements prescribed in either paragraph A *or* B.

A. A full 4-year or longer curriculum in an accredited college or university leading to a bachelor's or higher degree including courses in mathematics totaling 24 semester hours.

B. Courses in mathematics in an accredited college or university totaling 24 semester hours; plus appropriate experience or education which when combined with the 24 hours in mathematics will total 4 years of education and experience and give the applicant a technical and general professional knowledge equivalent to that which would have been acquired through the successful completion of the 4-year college course described in A above.

The work experience acceptable in combination with education (B above) must demonstrate that the candidate can perform satisfactorily professional mathematical work at the initial entrance level in this occupation. As a minimum, this combination must show positive evidence of ability to compose written reports, apply theoretical knowledge to practical problems and draw accurate conclusions from the work accomplished.

In either A or B above, the courses in mathematics must have been acceptable for credit toward meeting the requirements of a major in mathematics in a 4-year professional curriculum leading to a bachelor's degree. The total course work must have included, as a minimum, differential and integral calculus and, in addition, four advanced mathematics courses which require calculus or equivalent mathematics courses as a prerequisite.

For those positions in any grade involving highly complicated or fundamental scientific research or similar difficult scientific duties candidates must have successfully completed the college curriculum including the required courses in mathematics specified in A above.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in mathematics or in a directly related field, e.g., celestial mechanics.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	Minimum amount of professional experience in appropriate subject-matter fields (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	Minimum amount or level of education in appropriate subject-matter fields
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research and analytical positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or analytical work of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

ADDITIONAL CREDIT FOR CREATIVE RESEARCH

Except for candidates who qualify for a particular grade on the basis of graduate study

requirements, candidates who have made a creative research contribution to the field of mathematics may be rated eligible for the next higher grade than that for which they qualify under standard education and experience requirements.

Such research must have been on a hitherto unsolved problem or problems. It must have been creative in that it produced a basic principle, directly applicable in the solution of other problems, and may open up new areas of research.

On the one hand, such creative research characteristically involves the introduction of unorthodox assumptions, idealizations, approaches, and mathematical concepts, techniques or relationships which are not obvious, and which have not previously been perceived even by authorities in the field.

On the other hand, it may also characteristically involve the rejection of assumptions, idealizations and mathematical concepts, techniques or relationships hitherto held valid but which for obscure reasons do not hold when applied to the problems.

AMENDED EDUCATIONAL REQUIREMENT

This standard is subject to the provisions of the "Amended Educational Requirement for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

SELECTIVE PLACEMENT

Because positions in this series may require specialized experience in a branch of mathematics or in a particular subject-matter application, selective placement may be used for competitive appointments above grade GS–7 as appropriate.

GUIDE FOR THE EVALUATION OF CANDIDATES

Most appointments to grades GS–5 and GS–7 are made on a competitive basis, while those to the higher grades are filled by a variety of methods, both competitive and noncompetitive. Moreover, appointments at grades GS–5 and GS–7 are predicated largely on the basis of the candidate's "potential" ability to perform professional mathematics duties while those to the higher grades are predicated largely on the candidate's "achievement" in mathematics. Accordingly, the appropriate characteristic should be recognized and emphasized in the evaluation of candidates in each category.

Candidates for positions at the GS–5 and GS–7 levels

The primary elements to be considered in the evaluation of candidates for GS–5 and GS–7 positions are the candidate's record of academic achievement and any related pre-professional and/or post-college employment shown. The following factors should be considered in establishing an evaluation procedure at grades GS–5 and GS–7 which is based on the candidate's academic achievement.

1. The pattern of mathematics courses successfully completed by the candidate and the extent to which any related natural, social, and physical science and/or engineering courses contribute to the candidate's basic knowledge of the field of mathematics or his ability to perform the duties assigned to him.

2. The grades achieved by the candidate. Attention should be accorded to the candidate's relative standing in his class as well as his grades in mathematics and related science courses.

3. In addition to evaluating the candidate's knowledge of mathematics, effort should be directed towards ascertaining his abilities in areas such as ability to prepare written reports, ability to apply theoretical knowledge to prac-

tical problems, and ability to follow instructions and cooperate with others in accomplishing his work. These skills are often vital to successful performance in this occupation, and, therefore, may be considered in the ranking process. Qualification inquiries, may be used, as appropriate, to ascertain the candidate's abilities in these areas.

Candidates for positions at GS–9 and above

At these levels, and in contrast to the GS–5 and GS–7 levels, the evaluation of candidates is based with increasing emphasis on "achievement" in terms of experience and/or graduate training in professional mathematics rather than "potential" in the field. Consequently, the quality and quantity of the candidate's undergraduate training in mathematics become less and less significant in comparison to the quality and quantity of his graduate training in mathematics and his work experience, progression, and record of achievement in mathematics. Professional mathematics experience can best be evaluated by mathematicians who have attained stature in their field and have received training in qualifications examining and the evaluation of scientific achievement.

To assure maximum quality in the evaluation process, consideration of the candidate's qualifications should include publications, participation in professional organizations, presentation of papers to professional groups and organizations, participation in seminars, study groups, symposia, etc., and other professional achievements as well as his work experience. Conversely, the evaluator must avoid placing undue emphasis or weight on a single aspect of the candidate's qualifications. As examples, unwarranted credit should not be accorded to sheer volume of publications, if the body of the candidate's qualifications is not indicative of an appropriate level of quality. Undue emphasis should not be placed on single factors such as participation in a significant project or study, employment with an organization of recognized stature in the field of mathematics or employment or study with a recognized authority in the field. These factors, as isolated entities, do not form a sufficient basis for proper evaluation. In every case, the candidate's qualifications should be evaluated in a body, and undue emphasis or weight should not be granted to single and/or isolated factors at the expense of total evaluation of the candidate's qualifications. In evaluating work experience, evidence of the ability to apply academic training to specific mathematical problems, the ability to prepare descriptive or interpretive material, and the ability to provide technical or administrative leadership should be recognized and granted appropriate credit.

Positions at the higher levels typically require specialized qualifications which are peculiar to the positions involved. The qualifications of candidates for these positions and the specialized requirements of the positions themselves should be thoroughly considered and aligned before referral or certification is accomplished. Although the ability to perform research is a requirement of research mathematician positions, it does not follow that only research experience is qualifying for research positions or that mathematicians with research backgrounds are not to be considered for operating positions. Experience and/or education acquired in a research environment may equip the candidate with the specialized knowledges and skills necessary for full performance in a particular operating position, and, of course, the reverse situation may be equally true.

COLLEGE TEACHING

College-level teaching of mathematics may be considered as professional experience in mathematics. In accepting and evaluating teaching experience, all specific qualification requirements pertaining to professional experience such as those of grade level, responsibility, scope, specialization and knowledges required, are also to be applied to teaching experience. Teaching experience that is accompanied by a significant amount of research, direction of research, investigative or similar work may be

credited at full value in meeting a specific requirement of research, investigative, or similar experience.

BASIS OF RATING

No written examination is required. Candidates will be rated, on a scale of 100, on the extent and quality of their experience and training. Such ratings will be based upon candidates' statements in their applications and upon any additional information that may be secured by the Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 8. In addition, vision is required for most positions; however, some positions may be suitable for the blind.

MATHEMATICS TECHNICIAN SERIES

Mathematics Aid GS–1/4
Mathematics Technician GS–5/11

DESCRIPTION OF WORK

Mathematics aids and technicians perform work in the reduction and computation of quantitative data where such work requires nonprofessional training or experience in the use of mathematical techniques in connection with particular engineering and scientific activities.

EXPERIENCE, TRAINING AND OTHER REQUIREMENTS

Written test

Candidates for positions in grades GS–2 and GS–3 must pass a written test of abilities necessary to learn and perform the duties of these positions.

Candidates for positions at GS–1 must (1) pass the written test; or (2) present satisfactory evidence of successful completion of a full 4-year or senior high school curriculum; or (3) show 3 months of appropriate training or experience which has demonstrated aptitude for mathematics.

Experience requirements

Candidates must meet the experience requirements specified below. (Successfully completed education of acceptable type, quality, and duration may be substituted for experience.)

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–1	0	0	0
GS–2	½	0	½
GS–3	1	0	1
GS–4	1½	½	2
GS–5	2	1	3
GS–6	2	2	4
GS–7	2	3	5
GS–8 and above	2	4	6

General experience: Aid or technician experience in the physical sciences, engineering, mathematics, statistics and/or a related scientific or technical field such as computer operation.

Specialized experience: Nonprofessional technical work of progressive difficulty, requiring knowledge and application of mathematical concepts and techniques in the calculation and reduction of quantitative data, relating to scientific and engineering activities. Specialized experience may be gained in technician positions in occupations such as physical science, engineering, computing, mathematics, and statistics.

Supervisory → positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

QUALITY OF EXPERIENCE

For eligibility at *grade GS–4*, the 6 months of required specialized experience must have been comparable in difficulty and responsibility to the GS–3 level.

For eligibility at *grade GS–5*, at least 1 year of the required experience, including at least 6 months of specialized experience, must have been comparable in difficulty and responsibility to the GS–4 level.

For eligibility at grades *GS–6 through GS–11*, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service. Specialized experience acceptable under this paragraph must have been characterized by progression in difficulty and responsibility or variety, or must have been supplemented by academic study so that there is substantial development of the candidate's knowledge and ability. Routine performance of repetitive duties without evidence of such growth and development may be accepted for not more than 3 months of specialized experience.

For positions *at GS–9 and above*, at least 1 year of the specialized experience must be directly related to the duties of the specific position to be filled. Placement of technicians in positions at GS–9 and above, either through selective certification or noncompetitive action, must be predicated upon (1) a detailed job analysis of the knowledges, abilities, and skills

required for the work, and (2) an itemized matching of the candidate's knowledges, abilities, and skills sufficient to assure satisfactory performance.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must demonstrate conclusively that he possesses the ability to perform work commensurate with the duties of the position.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below:

GS–2: Graduation from a full 4-year or senior high school, in a curriculum which included 1 year of algebra or more advanced mathematics and two ½-year courses in other mathematics, natural or physical science, and/or technology (e.g., drafting or surveying) may be substituted in full for the experience requirements at the GS–2 level. (High school education may not be substituted for any part of the experience requirements for GS–3 and above.)

GS–3: Successful completion of 1 academic year of post high school education in an accredited resident institution that included or was supplemented by at least 12 semester hours in any combination of courses such as mathematics, computer programing, engineering science, statistics, physical science, or surveying, may be substituted for 1 year of experience, and meets in full the experience requirements as the GS–3 level.

GS–4: Two years of academic study as described for GS–3 above, which included or was supplemented by at least 24 semester hours in any combination of the subjects as listed above, may be substituted for 2 years of experience, including ½ year of specialized experience, and meets in full the experience requirements at the GS–4 level.

GS–5: Successful completion of a full 4-year or longer curriculum in an accredited college or university leading to a bachelor's or higher degree, which included at least 24 semester hours in mathematics courses acceptable for credit towards a major in mathematics and which included differential and integral calculus may be substituted for 3 years of experience, including 1 year of specialized experience, and meets in full the experience requirements at the GS–5 level.

Appropriate education and training other than that outlined above, such as in manpower development programs or military training programs, will be granted credit depending upon its applicability and extent. The maximum amount of experience for which education of any kind may be substituted is 3 years.

EXTRA CREDIT FOR OUTSTANDING COMPETENCE (OPTIONAL PROVISION)

For positions at GS–9 and above, candidates who show positive evidence of outstanding competence and exceptional accomplishment may be rated eligible for the next higher grade than that for which they would otherwise qualify on the basis of the standard requirements of education and experience. Such candidates must demonstrate (*a*) outstanding competence based on a combination of factors such as subject-matter knowledge, creativity, specialized skills, progression of experience, and continuing growth through academic study; (*b*) a record of accomplishment which is recognized in the professional and technical community as exceptional and is marked by awards, published papers, citations, patents, or similar evidence; (*c*) proven ability to perform fully the work of the position to be filled; and (*d*) that they are clearly outstanding with respect to candidates with comparable backgrounds of experience and training.

BASIS OF RATING

Competitors for all positions will be rated on a scale of 100.

The basis of rating will be:

For GS–1: An evaluation of experience and training.

(TS 108)
July 1967

Reprinted without change
December 1975 (TS 156)

For GS–2 and GS–3: Written test scores.

For GS–4 and above: An evaluation of experience and training. Candidates must present evidence of ability to discharge the duties of the position applied for. The information for evaluating experience and training will be taken from the application form and any additional information obtained through confidential inquiries to supervisors, teachers, and other references. In conducting the evaluation, attention should be given to factors such as—*Assignments:* type, variety, relative difficulty, progression; *Work Output:* productivity (quantity), acceptability (quality), freedom from error, ability to learn from errors; *Interest and attitude:* career objectives, participation in training activities, self-improvement activities, work attitude, acceptance of criticism, etc.

IN-SERVICE PLACEMENT ACTIONS

Written test

The test may be waived in in-service placement actions, but not for appointments outside the register.

Credit for high school education

In noncompetitive actions successfully completed high school education may be credited in accordance with the "add-on" rule, section 3–1 (b), FPM chapter 337.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2. In addition, candidates must possess emotional and mental stability.

Mathematical Statistician GS-5/15

DESCRIPTION OF WORK

Mathematical statisticians perform professional work involving the development and adaption of mathematical statistical theory and methodology for a wide variety of statistical investigations. They are responsible for the investigation and evaluation of the applicability, efficiency, and accuracy of the theory and methods used by subject-matter specialists or other statisticians in various statistical programs and studies. They usually have only incidental concern for the subject matter involved.

Positions in the higher grades are distinguished by greater range of problems both in respect to breadth and complexity of assignments and in the exercise of greater responsibility and initiative in planning the work, selection of method and contribution to the final product.

BASIC REQUIREMENTS FOR ALL GRADES

1. Applicants for all grades must have successfully completed one of the following, A or B:

A. A full 4-year course, or its equivalent, in an accredited college or university leading to a bachelor's degree. This study must have included courses in mathematics and statistics consisting of lectures and recitations totaling at least 24 semester hours, of which at least 12 semester hours are in mathematics and 6 semester hours are in statistics.

B. Courses in mathematics and statistics, in an accredited college or university consisting of lectures and recitations totaling at least 24 semester hours of which 12 semester hours are in mathematics and 6 semester hours are in statistics; plus additional appropriate experience or education which, when combined with the 24 semester hours in mathematics and statistics, will total 4 years of education and experience and give the applicant a technical and general professional knowledge comparable to that which would have been acquired through the successful completion of the 4-year college course described in "A" above.

2. Courses acceptable toward meeting the mathematics course requirement of paragraphs A or B above must have included at least four of the following: Differential Calculus, Integral Calculus, Theory of Equations, Vector Analysis, Advanced Algebra, Differential Equations, or any other advanced course in mathematics for which one of these is a prerequisite. Courses in mathematical statistics or probability theory with a prerequisite of elementary calculus or more advanced courses will be accepted toward meeting the mathematics requirements, with the provision that the same course cannot be counted toward both the mathematics and the statistics requirement.

3. For some positions, credit in subjects such as the following, which are frequently offered in the mathematics departments of colleges, may be considered to meet the statistics requirement in either paragraph A or B above: Theory of Probability, Combinatorial Analysis; Numerical Methods; Calculus of Observations; Calculus of Finite Differences; Interpolation; Graduation; Methods of Applied Mathematics; Linear Algebra; Statistical Mechanics; Actuarial Mathematics; and Digital Computing. This listing of courses is not all-inclusive but is included as a guide to the type of mathematics course-work creditable for meeting statistics requirements for some positions. For other positions certification may be limited to eligibles who show completion of statistics courses.

4. The experience offered in combination with specified educational courses to meet the requirements specified in paragraph B above should include evidence of professional statistical work such as (*a*) sampling; (*b*) collecting, computing and analyzing statistical data; (*c*) applying known statistical techniques to data such as measurement of central tendency, dispersion, skewness, sampling error, simple and

multiple correlation, analysis of variance and tests of significance.

Without other indication of professional statistical experience, work required in the processing of numerical or quantified information by other than statistical methods is not considered appropriate qualifying experience. Examples of such nonqualifying work include statistical clerical work; statistical drafting; work requiring the calculation of totals, averages, percentages or other arithmetic summations; work involving the preparation of simple tables or charts; work requiring the verification of data by simple comparison or proofreading.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in a combination of mathematics and statistics, or in directly related subjects which provided the necessary knowledges and abilities.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or kind of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.

GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

CREDIT FOR CREATIVE RESEARCH

Except for candidates who qualify under graduate study requirements, applicants who have achieved the distinction of making a creative research contribution in either mathematics or statistics may be eligible for one grade higher than the grade for which they would otherwise be eligible. Such research must have been on a hitherto unsolved problem or problems related to these fields. It must have been creative research in that it must have produced a basic principle, concept, method, approach or technique, that not only solves the specific research problem at hand, but also is directly applicable in the solution of other research problems, and may open a new area of research. On the one hand, such creative research characteristically involves the introduction of unorthodox assumptions, idealization, approaches, physical concepts, mathematical or statistical developments, or relationships which are not obvious but correct and which have not previously been made even by authorities in the field. On the other hand, it may also characteristically involve the rejection of assumptions, idealizations, approaches, physical concepts, mathematical or statistical techniques, or relationships hitherto held valid but which, for obscure reasons, do not hold when applied to the problem. Applicants should submit detailed information on the nature of their research experience.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

ALTERNATE STANDARD

Statistician GS–5

Statistician (appropriate subject-matter specialization) GS–7/9

This standard may be used for filling positions only in agencies having formal supplemental education and training programs providing 6 semester hours (or their equivalent) of training in statistics, during the first 3 years of employment.

Minimum education requirements

1. Applicants for all grades must have successfully completed one of the following, A *or* B:

A. A full 4-year course leading to a bachelor's degree in an accredited college or university which has included 9 semester hours in statistics (or in mathematics and statistics provided at least 6 semester hours are in statistics), and 15 additional semester hours in an appropriate field, e.g., the physical or biological sciences, agriculture, medicine, education or engineering; or in the social sciences including demography, history, economics, social welfare, geography, international relations, social or cultural anthropology, sociology, political science, public administration, business administration, psychology, etc.

B. Courses as given in A above, plus additional appropriate experience or education which when combined with these courses will total 4 years of education and experience and give the applicant a technical knowledge comparable to that which would have been acquired through successful completion of a full 4-year course.

2. The experience offered in combination with specified educational courses to meet the requirements specified in paragraph B above should include evidence of professional statistical work such as (a) sampling, (b) collecting, computing and analyzing statistical data; (c) applying statistical methods to data collection or processing, or in the establishment and operation of data collection systems; (d) applying known statistical techniques to data, such as measurement of central tendency, dispersion, skewness, sampling error, simple or multiple correlation, analysis of variance and tests of significance.

Without other indication of professional statistical experience, work in the processing of numerical or quantified information by other than statistical methods is not considered appropriate qualifying experience. Examples of such nonqualifying work include statistical clerical work; statistical drafting; work requiring the calculation of totals, averages, percentages or other arithmetic summations; work involving the preparation of simple tables or charts; work requiring the verificaiton of data by simple comparation or proofreading.

3. For positions involving work requiring highly technical functions, selection may be restricted to eligibles who show successful completion of a full college course in the appropriate field as designated above.

Experience requirements

1. *For Grade GS–5.*—No additional experience or training is required.

2. *For Grades GS–7 and GS–9.*—The required experience detailed in the following paragraphs must have been of sufficient scope and difficulty to show ability to perform the duties of the position and the applicant must have had 1 year of professional statistical experience comparable in scope and difficulty to that of the next lower grade in this series. Experience requirements for each class of positions follow:

a. *Statistician (appropriate subject-matter specialization)*

Subject-matter fields:

1. Agriculture
2. Biology
3. Health
4. Medicine
5. Engineering
6. Social Science
7. Operations and Administration including logistics

May 1962

Reprinted without change
December 1975 (TS 156)

8. Economics
9. Demography
10. Education
11. Physical Science

GS–7: One year of analytical statistical work which included the appraisal of the quality and adequacy of available statistical data, the application and use of appropriate statistical methods and the interpretation of calculated statistical measures.

GS–9: Two years of moderately difficulty analytical statistical work which included the appraisal of available data, the use of a variety of standard statistical methods, and the preparation of statistical research reports involving the evaluation and interpretation of calculated statistical measures. One year of this experience must have been such as to demonstrate a knowledge of the special problems peculiar to the designated subject-matter field.

b. *Survey Statistician*

GS–7: One year of statistical survey work which included applying accepted statistical methods and procedures in the editing of schedules and tables for errors, bias, or inconsistencies; exercising discretion and judgment in making the necessary adjustments in accordance with program objectives; or assisting in the preparation of questionnaires and tabulation plans pertaining to projects of broad scope.

GS–9: Two years of statistical survey work which included applying statistical theory and method in planning surveys and developing questionnaires, planning tabulations, preparing cost studies or planning editing procedures related to statistical projects of some scope and moderate complexity.

The grade level for which applicants are considered qualified will be determined by the quality of their experience as shown by the scope and level of the responsibilities involved, and the complexity of the problems handled.

→*Supervisory positions*

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

Substitution of graduate study for experience

One full year of sucessfully completed graduate study at an accredited college or university in an appropriate subject-matter field may be substituted for the experience required for grade GS–7.

Superior graduates

For applicants who possess the bachelor's degree, the superior graduate provision contained in Part II of Handbook X–118 may be applied at GS–7 only.

Requirements for training after employment

Agencies using this standard must, within 3 years after employment, provide appointees formal supplemental education and training totaling at least 6 semester hours in statistics which enables them to meet the criteria outlined under "Minimum Education Requirements" in the normal qualification standard for the Statistician Series. Such training may include:

1. Resident courses in statistics at colleges and universities, totaling at least 6 semester hours, with content *other* than those courses used to qualify under this standard.

2. Correspondence courses in statistics offered for credit by colleges and universities, totaling at least 6 semester hours, with content *other* than those courses used to qualify under this standard.

3. Correspondence courses offered by the agency itself, which have been evaluated by the Civil Service Commission as equivalent to those described in 2 above.

4. Any combination of the above.

Written test

All applicants for positions at grades GS–5 and GS–7 must pass an appropriate written test. The written test may be waived in noncompetitive actions but not for temporary appointments outside the register.

STATISTICIAN SERIES

Physical requirements

See part II, Physical Requirements, paragraph 2; in addition, applicants must possess emotional and mental stability.

Documentation of use of standard

To avoid confusion with the regular qualification standard for the Statistician Series, agencies using this standard for either *competitive* or *noncompetitive* actions will:

1. In Part II, Item K (7) of Standard Form 52, show "*Alternate Standard*" in addition to the usual entry required by FPM X–1–40.02.

2. In Item 7, Standard Form 50, show "*Alternate Standard*" in addition to the appropriate entry required by FPM Chapter R–1.

3. Under "Remarks" in both Forms 50 and 52, show the statement "Employee may not be promoted beyond GS–9 in GS–1530–0 series until he meets requirement of 15 semester hours in mathematics and statistics."

4. For employees who meet the regular standard, show under "Remarks" in both Forms 50 and 52, "Employee has met requirement for 15 semester hours in mathematics and statistics."

Statistician GS-5

Statistician (appropriate subject-matter specialization) GS-7/15

Survey Statistician GS-7/15

DESCRIPTION OF WORK

Statisticians do professional work or provide professional consultation requiring the application of statistical theory and technique in the collection, compilation, analysis and interpretation of quantitative information in a variety of subject-matter fields including the biological, social and physical sciences, engineering, agriculture, and administration.

Statisticians (*appropriate subject-matter specialization*) are primarily concerned with the use of statistical theory, techniques and methods to determine meaningful relationships or to measure the significance of quantified information in a particular subject-matter field, e.g., biology, demography, engineering, economics, etc.

Survey Statisticians are concerned with the application of statistical theory and technique to the planning, organization, and operation of programs for collecting, verifying, adjusting, processing, summarizing, and presenting information expressed numerically.

BASIC REQUIREMENTS FOR ALL GRADES

1. Applicants for all grades must have successfully completed one of the following, A *or* B:

A. A full 4-year course leading to a bachelor's degree in an accredited college or university which has included 15 semester hours in statistics, (or in mathematics and statistics provided at least 6 semester hours are in statistics) and 9 additional hours in one of the following: the physical or biological sciences, medicine, education or engineering; or in the social sciences including demography, history, economics, social welfare, geography, international relations, social or cultural anthropology, health sociology, political science, public administration, psychology, etc. Credit toward meeting statistical course requirements should be given for courses in which 50 percent of the course content appears to be statistical method, e.g., courses which include studies in research methods in psychology or economics such as tests and measurements or business cycles, or courses in methods of processing mass statistical data such as tabulating methods or electronic data processing.

B. Courses as given in A above, plus additional appropriate experience or education which when combined with these courses will total 4 years of education and experience and give the applicant a technical knowledge comparable to that which would have been acquired through successful completion of a full 4-year course.

2. The experience offered in combination with specified educational courses to meet the requirements specified in paragraph B above should include evidence of professional statistical work such as (a) sampling, (b) collecting, computing and analyzing statistical data; (c) applying known statistical techniques to data such as measurement of central tendency, dispersion, skewness, sampling error, simple and multiple correlation, analysis of variance and tests of significance.

Without other indication of professional statistical experience, work in the processing of numerical or quantified information by other than statistical methods is not considered appropriate qualifying experience. Examples of such nonqualifying work include statistical clerical work; statistical drafting; work requiring the calculation of totals, averages, percentages or other arithmetic summations; work involving the preparation of simple tables or charts; work requiring the verification of data by simple comparison or proofreading.

3. For positions involving highly technical research, development or similar complex scientific functions, selection may be restricted to eligibles who show the successful completion

of a full college course in the appropriate field as designated above.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, statistics or an appropriate subject-matter field. For statistician positions at GS–9 and above in one of the specializations listed below, the experience or education must have provided specialized knowledge of the subject-matter field:

Subject-Matter fields:

1. Agriculture
2. Biology
3. Health
4. Medicine
5. Engineering
6. Social Science
7. Operations and Administration including logistics
8. Economics
9. Demography
10. Education
11. Physical Science

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (years)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Analytical positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 years of graduate study is required when— a. The position involves primarily analytical work of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.

To be acceptable, the graduate education must have included a course in statistical or related theory for which knowledge of calculus is required.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

BASIS OF RATING

No written test is required. Applicants' qualifications will be rated on a scale of 100, and will be evaluated on the basis of their education, training, and experience as shown in the application, and on corroborative evidence obtained by the Civil Service Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 2; in addition, applicants must possess emotional and mental stability.

STATISTICAL ASSISTANT SERIES[1]

Statistical Clerk GS–4[2]

Statistical Assistant GS–5/13

DESCRIPTION OF WORK

Candidates appointed to these positions perform statistical work in connection with the collection, processing, compilation, computation, analysis, editing, and presentation of statistical data. This work is usually concerned with a specific operational, program, or subject-matter field of statistics. The kind and type of assignment, and the degree of responsibility involved, varies with the field of work and the grade level of the position involved.

The work requires primarily the application of statistical methods, procedures, and techniques, but does not require professional knowledge of statistics.

EXPERIENCE, TRAINING, AND RELATED REQUIREMENTS

Experience

Candidates for the various grades of these positions must meet the experience requirements specified below. (Successfully completed education of an acceptable type, quality, and duration may be substituted for experience as indicated below.)

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–4	1½	½	2
GS–5	2	1	3
GS–6	2	2	4
GS–7	2	3	5
GS–8 and above	2	4	6

General experience: Experience gained in any area of clerical, technical, administrative, or supervisory work that would provide:

—general knowledge of office procedures and practices, and how they are applied;

—ability to collect and organize data; or

—ability to work with numbers, make computations, and compile and tabulate the results.

Specialized experience: Statistical experience gained in any of the operational, program or subject-matter areas or fields of statistics, or in related fields, where the work involved the application of statistical methods, procedures, and techniques, or the presentation or reporting of statistical data.

Excess specialized experience may be used to meet general experience requirements.

Supervisory positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

QUALITY AND LEVEL OF EXPERIENCE

For the GS–4 grade, the 6 months of required specialized experience must have been gained at a level of difficulty and responsibility comparable to that of the GS–3 grade in the Federal service.

For the GS–5 grade, at least 1 year of the required experience, including at least 6 months of specialized experience, must have been gained at a level of difficulty and responsibility comparable to that of the GS–4 grade in the Federal service.

These requirements are met at the GS–4 and GS–5 grades when applicants qualify on the basis of education alone.

For grades GS–6 through GS–11, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service.

For grades GS–12 and above, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service.

[1] This standard supersedes the standard for this series which was issued in June 1962.

[2] Qualification standards for Clerk GS–300–1/3 are to be used for filling Statistical Clerk positions below GS–4.

(TS 156)
December 1975
Reprinted without change January 1978 (TS 164)

With respect to positions *at grades GS–9 and above*, at least 1 year of the specialized experience must be directly related to the duties of the specific position to be filled. Placement in positions at GS–9 and above, either through selective certification or inservice placement, must be predicated upon (1) a careful job analysis of the knowledges, abilities, and skills required for the work, and (2) a matching of the candidate's knowledges, abilities, and skills sufficient to assure satisfactory performance.

For any grade, the required amount of experience and education will not in itself be accepted as evidence of qualification for a position. The candidate's record of experience and education must demonstrate that he possesses the ability to perform the duties of the position.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

Successfully completed education of acceptable type and quality may be substituted for the experience requirements at the various grade levels, as specified below, or on a proportional basis:

For GS–4: At least 2 academic years of post high school education in an accredited resident institution that included or was supplemented by the equivalent of 6 semester hours in mathematics and/or statistics may be substituted for 2 years of experience, including ½ year of specialized experience, and meets in full the experience requirements for the GS–4 grade.

For GS–5: Successful completion of a full 4-year course in an accredited college or university leading to a bachelor's degree, that included or was supplemented by the equivalent of 6 semester hours in statistics, may be substituted for 3 years of experience including 1 year of specialized experience, and meets in full the experience requirements for the GS–5 level.

Appropriate education and training other than that outlined above, such as in manpower development programs or military training programs, will be granted credit, generally on a month-for-month basis, depending upon its applicability and extent. The maximum amount of experience for which education of any kind may be substituted is 3 years.

BASIS OF RATING

A written test is required for grade GS–4. It may be waived for inservice placement actions but not for appointments outside the register.

For grades GS–→5← and above, a written examination is not required. Candidates will be rated on the extent and quality of their experience, →education←, and training. Such ratings will be based upon statements of candidates in their applications, and upon any additional information that may be secured by the Commission.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3. In addition, candidates must possess emotional and mental stability.

GUIDE FOR APPRAISING CANDIDATES

The following considerations are offered as guides in determining the level and quality of candidates' backgrounds in relation to the requirements of the positions for which they are being considered:

1. All positions in this series require skill in working with numbers and in manipulation and evaluation of data. Accordingly, specialized experience in working with numbers and with statistical methods and techniques is required.
2. The classification standard for this series will be especially helpful in determining the grade-level equivalence of experience.

Among the factors to be considered are:

—Kind, variety, standardization, and complexity of assignments.
—Degree of participation in planning projects and in developing procedures and instructions.
—Demonstrated productivity and quality of work output.
—Demonstrated accuracy and aptitude for working with numerical data.
—Knowledge of statistical and automatic data processing methods, procedures, and techniques.
—Ability to exercise sound judgment in resolving technical and administrative problems.
—Ability to work effectively with others.
—As required, supervisory or managerial abilities.

Cryptanalyst GS–1, 2

For GS–1, no experience is required. For GS–2, applicants must have had 1 year of experience in the physical sciences or engineering.

A written test is required for both GS–1 and GS–2.

When an agency elects to waive the written test requirement in noncompetitive actions for grade GS–1, an applicant must show, as an alternate demonstration of qualifications, either 6 months' experience in physical science or engineering or graduation from high school.

Substitution: The successful completion of a full 4-year or senior high-school curriculum which has included six ½-year courses in any combination of the following subjects may be substituted for the 1 year of experience required for the GS–2 grade: mathematics, physics, chemistry, or drafting.

Pertinent resident study completed in schools above high-school level may be substituted for the required experience. Such study will receive appropriate credit in accordance with the length and content of the course.

Pertinent training acquired while serving in the armed forces of the United States will be accepted on the same basis as civilian training and will be evaluated according to the actual time spent in training and the subject-matter content of the courses completed.

See part 2, Physical Requirements, paragraph 4. (April 1957)

Cryptanalyst GS–3, 4, 5, 6, 7

The experience specified below is required:

Grade	Total (years)	Specialized (months)
GS–3	2	3
GS–4	3	6
GS–5	4	9
GS–6	4½	12
GS–7	5	12

The total experience must have been in one or more of the physical sciences such as physics, chemistry, mathematics, geology, metallurgy. The specialized experience must have been in a specific branch of physical science and must have been at a level of difficulty and responsibility equivalent to that of the next lower grade in this series.

Experience gained in such positions as meteorological aid, observer in meteorology, cotton textile technologist, inspector, laboratory mechanic, medical technician, scientific aid in the biological sciences, or statistical clerk will not be considered qualifying experience in full in this examination. However, if the exact nature of the duties in any of the above positions is such that it affords the applicant opportunity to acquire knowledge of the principles and concepts of a physical science pertinent to the duties of the position, partial or full credit may be given toward meeting the general nonspecialized experience requirements for any grade.

Substitution: 1 year of engineering experience may be substituted for 1 year only of the required experience, but not for any part of the specialized experience.

The successful completion of a full 4-year or senior high-school curriculum which has included six ½-year courses in any combination of mathematics, physics, chemistry, or drafting, may be substituted for 1 year of the experience for GS–3, and for 6 months of the experience for GS–4. High-school study may not be substituted for any part of the experience required for GS–5, 6, and 7, nor for any part of the specialized experience required for any grade.

Pertinent undergraduate or graduate study in physical sciences or mathematics completed in an accredited college or university may be substituted year for year for the required experience, provided that such education may not be substituted for the specialized experience required for GS–6 and 7. Pertinent study completed in other residence schools above high-school level will receive appropriate credit in accordance with the courses shown in the application.

Pertinent training acquired while serving in the Armed Forces of the United States will

be accepted on the same basis as civilian training and will be evaluated according to the actual time spent in training and the subject-matter content of the courses completed.

→*Supervisory positions*

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

See part 2, Physical Requirements, paragraph 4.

COMPUTER SCIENCE SERIES

Computer Scientist GS–5/15

DESCRIPTION OF WORK

Computer scientists perform primarily professional research or development work to evolve new concepts, methods, and techniques to store, manipulate, transform, and present information by means of digital computer systems. Such work embraces a wide range of activities that are either concerned with the development of new fields of computer science research or are responsive to problems arising from use of digital computers within the Federal service. The work requires (a) professional competence in applying the theoretical foundations of computer science, including digital computer system architecture and system software organization, the representation and transformation of information structures, and the theoretical models for such representations and transformations; (b) specialized knowledge of broad areas of applications of computing which have common structures, processes, and techniques and of the design characteristics, limitations, and potential applications of electronic and electro-mechanical digital systems having the ability to transform information; and (c) knowledge of relevant mathematical and statistical sciences.

BASIC REQUIREMENTS FOR ALL GRADES

Minimum educational requirements

Candidates must have successfully completed a curriculum leading to a bachelor's or higher degree in an accredited college or university with a course of study that included or was supplemented by 30 semester hours of course work in a combination of mathematics, statistics, and computer science that provided in-depth knowledge of the (1) theoretical foundations and practical applications of computer science, including digital computer system architecture and system software organization, the representation and transformation of information structures, and the theoretical models for such representations and transformations, and (2) essential mathematical and statistical techniques. At least 15 of the 30 semester hours must be in any combination of statistics and mathematics which included differential and integral calculus.

GS–5—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirement. Such professional experience or graduate education must have been in, or directly related to, computer science. This experience or education must have equipped the candidate with the knowledge and ability to perform the work of the position for which that candidate is being considered. For example, candidates for research positions must possess the ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirement, the following amounts and levels of education are

qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; or Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); or Three full academic years of graduate education.
GS–11 Research or creative positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily research, creative or advanced scientific analytical work. b. The knowledges required for the work are typically and preferably acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research or creative positions.	Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily research, creative or advanced scientific analytic work. b. The knowledge required for the work are typically and preferably acquired through graduate study at the doctoral (Ph. D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of Handbook X–118 must be met.

PROFESSIONAL EXPERIENCE REQUIREMENTS

Experience may have been gained in the performance of research, development, or analitical studies in any discipline to obtain insight into new or different concepts, methods, or techniques peculiar to computer science. Experience must have demonstrated skill, knowledge, and technical competence in the use of scientific and mathematical theories applicable to computer science and professional methods of scientific inquiry and analysis in the solution of research or development problems.

Such research or development must have involved extensive inquiry into or use of basic data, the structuring of problems for systematic analysis, the discovery of new facts, the adaptation or development of scientific techniques, and the construction and use of analytical or mathematical models, the formulation of recommendations for action, or the planning or directing of the foregoing activities.

For GS–9—The work experience must have demonstrated knowledge of scientific and mathematical methods and techniques applicable to computer science. It must also have demonstrated skill in the investigation, treatment, and analysis of basic data in preparing interpretative and analytical reports.

For GS–11—The work experience must have demonstrated the ability to perform professional work in computer science of some difficulty and responsibility. The work experience must also demonstrate the candidate's ability to

independently conduct limited studies or single aspects of larger studies, to organize data collections, to select and apply appropirate methods and analysis and to evaluate findings and draw reliable conclusions.

For GS–12—The work experience must have demonstrated skill, knowledge, and professional competence in the use of (a) advanced scientific and mathematical theories and principles applicable to computer science, and (b) scientific inquiry and analysis in the solution of difficult and complex research and development problems. Ability to prepare thorough and comprehensive reports relating to difficult problems must also be demonstrated.

For GS–13—The work experience must have demonstrated a thorough understanding of scientific principles and theories underlying computer science and a wide knowledge of concepts, factors, and conditions which influence the development and operation of complex digital computer systems. The experience must have demonstrated ability in either (a) the organization, direction, and coordination of complicated and important research or development projects, programs, or studies, or (b) marked technical competence and creativity in original scientific inquiry in developing new methods or new insight into relationships involved in complex computer technological areas.

For GS–14 and GS–15—The work experience must have (a) demonstrated a thorough knowledge and understanding of the scientific and mathematical principles and theories applicable to computer science, and (b) resulted in new information or advice concerning various alternative courses of action to resolve exceedingly complex digital computer technological problems. Experience for positions at GS–14 and GS–15 must demonstrate (1) skill and facility in the organization, direction, and coordination of complete and difficult research or development projects; and (2) exceptional technical competence in creative activities of high calibre resulting in important contributions to the fundamental knowledges of computer science; and (3) ability to conduct high-level consultative and advisory work in formulating research or development studies and programs and in presenting and carrying out far-reaching changes in major research or development programs, plans, and policies.

CREATIVE OR OUTSTANDING RESEARCH

Where candidates show positive evidence that they have performed highly creative or outstanding research, which has led, or can lead to a major advance in a specific area of research, or to a major advance in the field of computer science, they may be rated on this basis for highly demanding research positions which require similar abilities in order to perform the work. Candidates who meet this criterion may be rated eligible for the next higher grade above that for which they would normally be rated, provided they have not been rated at this higher grade on the basis of meeting the graduate study requirement. To receive this rating, the work must have been creative in the sense that it developed a basic principle, concept, method, or approach (or provided a body of basic information) which opened the way for major advances in computer science.

AMENDED EDUCATIONAL REQUIREMENTS

This standard is subject to the provisions of the "Amended Educational Requirements for Most Professional Positions in Science and Technology" as stated in section III, part II of this handbook.

GUIDE FOR EVALUATION OF CANDIDATES

Candidates for positions at GS–5 and GS–7

Evaluation of candidates is based largely on their academic career, with consideration also being given to any employment experience they may have had. In meeting the basic requirement it should be noted that candidates are allowed credit of 30 hours in a broad subject area without specific courses being required. When evaluating a candidate's academic record, however, consideration should be given to the extent to which courses successfully completed contributed to the candidate's basic knowledge of computer science and the scientific methods of research and analysis.

Until quite recently, professionals who had

individual backgrounds in different disciplines (e.g., mathematics, engineering, physics) and graduate education in computer science were the only available candidates for computer scientist positions. Now, however, a growing number of institutions are offering a 4-year curriculum to prepare the student for a career in computer science. More such curricula exist under other names such as information science or data processing or as options in such departments as mathematics or electrical engineering.

Courses acceptable as computer science may be taken in various departments. In certain universities computer science curriculum has been developed under the auspices of computer science departments which dwell on the abstracts of computation and languages. In such situations, the hardware aspects of computers particularly in hardware-software interface areas and operating systems may be neglected. Consequently, the results are students well versed in the abstract but with insufficient understanding of the translation of those abstracts to real world systems. On the other hand, engineering departments may not extend their programs beyond the hardware or electronic aspects of computing systems. In this instance, the results may be students who have a good understanding of the real world of hardware but little, if any, knowledge of the theory, abstracts, and languages of computation.

Candidates should have sufficient knowledge of statistics and mathematics as well as other subjects to understand the fundamental concepts and techniques of computer science. Courses designed to provide an introduction to computer science techniques and methodologies, to problems of system design, and other specialized fields are acceptable.

Illustrative of acceptable courses are the following:

Courses concerned with representations and transformations of information structures and with theoretical models for such representations and transformation, e.g., (1) *data structures* which includes the description, representation, and manipulation of numbers, arrays, lists, trees, files, etc; storage organization, allocation and access; enumeration, searching, and sorting; generation, modification, transformation, and decision techniques; the static and dynamic properties of structures; algorithms for the manipulation of sets, graphs, and other combinatorial structures; (2) *models of computation* which include the behavioral and structural analysis of switching circuits and sequential machines; the properties and classification of automata; algebraic automata theory and model theory; formal languages and formal grammars; the classification of languages by recognition devices; syntactic analysis; formal specification of semantics; syntax directed processing; the treatment of programming languages as automata; and other formal theories of programming languages and computation; or (3) programming *languages* which includes representation of algorithms; the syntatic and semantic specification of languages; the analysis of expressions, statements, declarations, control structures and other features of programming languages; dynamic structures which arise during execution; the design, development and evaluation of languages; program efficiency and the simplification of programs; sequential transformations of program structures; special purpose languages; and the relation between programming languages, formal languages; and linguistics. Basic courses in Fortran, COBOL, or other programming languages applicable to digital computers would be acceptable. Credit for such courses will be limited to two in number.

Courses concerned with systems having the ability to transform information, e.g., (1) *computer design and organization* which include types of computer structures, e.g., von Neumann computers, array computers and look-ahead computers; hierarchies of memory (e.g., flip-flop registers, cores, disks, drums, tapes) and their accessing techniques, microprogramming and implementation of control functions; arithmetic circuitry; instruction codes; input-output techniques and multiprocessing and multiprogramming structures; (2) *translators and interpretors* which includes the theory and techniques involved in building assemblers, com-

pilers, interpreters, loaders, and editing or conversion routines; (3) *computer and operation systems* which includes program monitoring and data management; accounting and utility routines; data and program libraries; modular organization of system programs interfaces and communication between modules; requirements of multi-access, multi-program and multi-process environments; large scale system description and documentation; diagnostic and debugging techniques; and measurement of performance; or (4) *special purpose systems* which include terminals for data transmission and display; peripheral and interface units for particular applications; and specialized support software. Basic courses in electronics particularly those associated with the design of digital computer equipment would be acceptable.

Courses concerned with broad areas of applications of computing which have common structures, processes, and techniques, e.g., (1) *symbol manipulation* which includes formula operations such as simplification and formal differentiation as well as symbol manipulation languages; (2) *text processing* which includes text editing, correcting, and justification; design of concordances, applied linguistic analysis; and text processing languages; (3) *computer graphics* which includes digitizing and digital storage; display equipment and generation picture compression and image enhancement; picture geometry and topology; perspective and rotation; picture analysis; and graphics languages; (4) *simulation* which includes natural and operational models; discrete simulation models; continuous change models; and simulation languages; (5) *information retrieval* which includes indexing and classification; statistical techniques; automatic classification; matching and search strategies; secondary outputs such as abstracts and indexes selective dissemination systems; and automatic question answering systems; (6) *artificial intelligence* which includes heuristics; brain models; patterns recognition; theorem proving; problem solving, adaptive cognitive systems and man-machine systems; or (7) *control systems* which includes machine tool control; experiment control; and command and control systems.

Courses concerned with (a) statistics and theory of probability, and (b) the mathematical sciences that pertain to or are involved in computer science, e.g., elementary analysis, linear algebra, Boolean algebra, ordinary or partial differential equations, matrix theory, algebra structures, methods of applied mathematics, optimization theory, combinatorial mathematics, numerical analysis, mathematical logic, number theory or introductory, differential, integral, or multivariate calculus. Courses or experience in teaching elementary, business, or shop mathematics are not acceptable.

Academic courses conducted by a Federal agency or a nonaccredited institution that are determined to be fully equivalent to courses in an accredited college may be accepted. (See Introduction to Handbook X–118, part II, section III, on page 12.)

In addition to evaluating the candidate's academic record consideration should be given to such factors as ability to use standard reference work, general reasoning ability, ability to follow specific instructions and guides, ability to understand scientific literature pertaining to computer science methodology and techniques, ability to write clear and accurate technical reports, and ability to cooperate with others in accomplishing work to which assigned.

Candidates for positions at GS–9 and above

For positions at these levels, evaluation of undergraduate college training is less important than the consideration of graduate training and professional work experience. The same factors that are used to evaluate the undergraduate academic record may also be used to evaluate the graduate record.

This occupation requires a high degree of competence in scientific inquiry and mathematical analysis. To maintain and develop such competence, training and education beyond that indicated in the basic requirement is needed. It is unlikely that such competence can be developed solely by routine on-the-job experience. Therefore, evidence of further study and personal development should be considered in determining quality of experience and ranking under promotion plans.

In evaluating candidates, consideration should be given to active membership in and presentations before professional organizations, technical publications, participation in seminars, awards, etc. Technical publications should be evaluated for the significance of their contribution to knowledge advancing the theories and methods of computer science. Computer science work has been performed by personnel from a wide spectrum of professional disciplines including mathematics, engineering, and physics. Experience in engineering or other disciplines is acceptable as computer science experience if it provided the required knowledges, skills, and abilities of computer science. As in most fields of the sciences, considerable emphasis is placed on a requirement for mathematical techniques because of the frequency with which the techniques are used in analyzing and resolving problems.

The following abilities are usually critical to computer science work at the full performance level:

1. Ability to devise new concepts or techniques in computer science or in adapting known techniques to the solution of unique and difficult problems.
2. Ability to think logically in determining the relevance of source material, in establishing procedures for obtaining pertinent data, and in drawing conclusions.
3. Ability to perform extensive inquiry into basic data to discover new facts or fundamental relationships.
4. Ability to simulate operations through the use of mathematical techniques and use of analytical models.
5. Ability to write concisely, to express thoughts clearly, and to develop ideas in logical sequence.
6. Ability to work alone or as a member of a team.

BASIS OF RATING

No written examination is required. Candidates will be rated, on a scale of 100, on the extent and quality of their experience and training. Such rating will be based upon candidates' statements in their applications and upon any additional information that may be secured by the Civil Service Commission.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Operations," in Part III of this handbook should be used in conjunction with this standard.

SELECTIVE PLACEMENT

Certain computer scientist positions may require specialized knowledge that are in addition to but different from those that are basic to all computer scientists. Such specialized requirements may vary significantly from one position to another. To provide appropriate flexibility in the matching of individual qualifications to particular assignments, selective placement procedures may be used where applicable. Certain positions may, for example, require highly developed knowledge of (a) topics concerned with the theoretical foundations of computer science, e.g., theory of formal languages and intelligent systems, or (b) specialized activities such as the structure and functioning of computer networks and the analysis of networking problems comparatively specific to the needs of particular disciplines or functional areas.

PHYSICAL REQUIREMENTS

Any physical condition which would cause the candidate to be a hazard to himself, herself, or to others, or which would prevent efficient performance of the duties of the position is disqualifying. Ability to read without strain printed material the size of typewritten characters, with or without corrective lenses, is required; however, some positions may be suitable for the blind. Ability to hear the conversational voice, with or without a hearing aid, is required for most positions. In most instances, a loss or deformity of an arm, hand, leg, or foot will not disqualify a candidate for appointment, although it may be necessary that the condition be compensated by use of satisfactory prosthesis. Candidate must possess emotional and mental stability.

MATHEMATICAL SCIENCE STUDENT TRAINEE SERIES

GS-1599

Student Trainee (Appropriate Specialty) GS-2, 3, 4, 5

The qualification standard appearing under the General Student Trainee Series, GS-099-0, is to be used for these positions.

For Supervisory and Nonsupervisory Positions in the General Facilities and Equipment Occupation Grades GS–2/15

DESCRIPTION OF WORK

This occupation covers a wide variety of positions engaged in supporting the operation, maintenance, and use of physical facilities and equipment, or in providing services concerned with their operation. Positions in this occupation involve either a combination of work characteristic of two or more series in the Equipment, Facilities, and Services Group or other equipment, facilities and services work for which no other series is established. The duties of these positions vary with the specific type of assignment and with the grade of the position.

EXPERIENCE REQUIREMENTS

Except for the substitution of education provided for below, candidates must show they have had as a minimum the amount and kinds of experience described below:

Grade	*General experience (years)*	*Specialized experience (years)*	*Total experience (years)*
GS–2	½	0	½
GS–3	1	0	1
GS–4	1½	½	2
GS–5	2	1	3
GS–6	2	2	4
GS–7	2	3	5
GS–8 and above	2	4	6

Experience requirements for higher grade levels.

In addition to meeting the basic requirements, applicants for positions at higher grade levels must have had experience which has demonstrably provided them with the knowledges, skills, and abilities to perform facility management work at the grade level for which application is made.

General experience

General experience is that which provided familiarity with plant or equipment maintenance work, or which would be helpful in developing skill in reading engineering drawings and specifications, using test instruments, making computations, or keeping maintenance records. The following are illustrative types of qualifying general experience:

—Apprentice in a construction or maintenance trade;
—Operator of construction or maintenance equipment;
—Aid to a construction inspector or representative;
—Draftsman or aid to an engineer or architect.

Specialized experience

Specialized experience is that which has demonstrated that the applicant has acquired and is able to apply the knowledge, skills, and abilities appropriate to the nature and grade level of the position.

Typically, such experience is gained in a line of work that is related to the work of the position to be filled, or in the same specific program area with which the position is concerned, or in a closely related kind of program. For example, experience in the scheduling and recording of production activities would be appropriate and qualifying for work involving facility maintenance scheduling and control. Similarly, work involving the surveillance of trades and craft work would be qualifying as specialized experience for a variety of Government positions concerned with facility operation and maintenance.

Excess specialized experience may be credited as general experience.

QUALITY AND LEVEL OF EXPERIENCE

For eligibility at grade GS–4, at least six months of the required specialized experience must have been of comparable difficulty and responsibility to the GS–3 level.

For eligibility at grade GS–5, at least one year of the required experience must have been comparable in difficulty and responsibility to the GS–4 level. At least six months of this experience at the GS–4 level must have been specialized experience.

For eligibilty at grades GS–6 and above, at least one year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or two years comparable to the second lower grade in Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must demonstrate he possesses the ability to perform the duties of the position.

SUBSTITUTING EDUCATION FOR EXPERIENCE

GS–2: Completion of senior high school, equivalent vocational school, or a General Educational Development (GED) high school equivalency certificate may be substituted for the experience requirement for grade GS–2. (High school education or GED equivalency certificate may not be substituted for any part of the experience requirements at GS–3 and above.)

GS–3: Successful completion of one academic year (nine months) of post-high school education that included a course in engineering or industrial technology, construction, drafting, surveying, physical science or mathematics may be substituted for one year of experience, and meets the experience requirements for grade GS–3.

GS–4: Successful completion of two years of post-high school academic study which included at least 12 semester hours in any combination of courses listed above for GS–3 may be substituted for two years of experience including one-half year of specialized experience. This meets in full the experience requirements at the GS–4 level.

GS–5: Successful completion of four years of post-high school academic study which included at least 27 semester hours in any combination of courses listed under GS–3 above may be substituted for three years of experience including one year of specialized experience. This meets in full the experience requirements at the GS–5 level.

Appropriate education and training other than that outlined above, such as manpower development programs, vocational education, or military training programs will be credited on a month-for-month basis.

At any grade, post-high school education or training that is acceptable under these standards may be substituted for part of the required experience at the rates of substitution indicated above.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for Supervisory Positions in General Schedule Occupations, in part III of this handbook, should be used in conjunction with this standard.

BASIS OF RATING

Candidates for all positions will be rated and ranked on the quality of experience, education, or training related to the duties of the position.

INSERVICE PLACEMENT ACTIONS

Credit for high school education

For inservice placement actions, high school education may be credited in accordance with the "add-on rule," that is, the employee need show only that he has acquired the additional qualifications required for the new position. Thus, a high school graduate appointed at grade GS–2 needs six months of appropriate experience to qualify for a GS–3 position.

WAIVING DIRECTLY APPLICABLE EXPERIENCE REQUIREMENTS AT GS–4

For inservice placement actions only, the requirement for directly applicable specialized experience at grade GS–4 may be waived for

lateral reassignment or promotion of employees in related technician positions, provided:

(1) The candidate has had experience which has provided knowledge of the work of the position for which he is being considered; and

(2) A review of the candidate's experience and performance indicates that he possesses the necessary skills and abilities, and has definite potential for successful performance of the work.

SELECTIVE PLACEMENT

Some positions require particular knowledges and skills. In such instances consideration may be limited to those candidates whose records show that they have the required knowledges and skills. For example, applicants may be required to show specialized knowledge of particular types of mechanical systems or structural installations.

GUIDE FOR EVALUATING EXPERIENCE AND EDUCATION

Candidates for beginning level technician positions need have only a knowledge of arithmetic and basic algebra; the ability to read and understand simple specifications and shop drawings; and the ability to learn construction and maintenance procedures.

At higher levels, candidates must have and be able to apply, in increasing measure, the knowledges, skills, and abilities that are appropriate to the position. Candidates should be evaluated according to the extent to which their skills and knowledges relate to the duties of the position to be filled. Such knowledges and skills may have been gained on the job or in courses related to the work of the positions.

In ranking applicants, detailed facts about the position requirements need to be established. For a position which requires specialized knowledges and abilities, experience gained in the particular kind of work and in the same or a directly related field as the position to be filled, normally should be ranked as highest quality. Experience in work which is similar to the duties of the position but in a less closely related field, or experience in work which is different from that of the position but in the same or closely related field, should be ranked at lower quality levels, or as nonqualifying, depending on the extent of relatedness and needs of the position.

Useful procedures for evaluating candidates for technician positions are described in appendix A to part II of this handbook, Guide to Evaluation of Employees for Promotion. Several procedures are suggested in this material, one or more of which may be appropriate for the varied types of positions classified in this series.

PHYSICAL REQUIREMENTS

Applicants must be physically able to perform efficiently the duties of the position, which are described elsewhere. Good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required. In most instances, an amputation of arm, hand, leg, or foot will not disqualify an applicant for appointment, although it may be necessary that this condition be compensated by use of satisfactory prosthesis. Applicants must possess emotional and mental stability. Any physical condition which would cause the applicant to be a hazard to himself or to others will disqualify for appointment.

For positions in the Facility Management occupation
Grades GS–5/15
Facility Manager
Facility Management Officer
Facility Management Specialist

DESCRIPTION OF WORK

The duties of these positions involve managing, administering, or performing technical staff work concerned with the operation, maintenance, and repair of Government buildings, grounds, and other types of facilities. Work covered by this occupation primarily requires managerial and administrative ability, and a broad knowledge of construction and maintenance standards, materials, and techniques.

(NOTE: More detailed descriptions of work for these positions are contained in the classification standard for the Facility Management Series, GS–1640.)

EXPERIENCE REQUIREMENTS

Except for the substitution provided for below, applicants must show they have had as a minimum the amount and kinds of experience specified:

Basic requirements for grade GS–5. Three years of progressively responsible experience in either or any combination of a or b below or in c combined with a or b, which has demonstrated the ability to exercise judgment and to work without immediate supervision.

a. Work which clearly demonstrated knowledge of practices and procedures related to property management, such as budget preparation, maintenance of property and financial records, and preparation of reports and correspondence on nonroutine matters.

b. Experience (such as in production or maintenance facilitating or support work) which has demonstrated knowledge of general maintenance systems, materials requirements, and scheduling procedures.

c. Experience in trades, crafts, or maintenance work which has demonstrated a knowledge of and ability to operate, maintain, and repair a variety of plant operating equipment, buildings, utility systems, etc.

Experience which consisted of routine duties not requiring technical knowledge or judgment is nonqualifying. (Experience in c can only be used to meet 50 percent of the general experience requirement.)

Substitution of education and training for the basic experience requirements

(1) Study successfully completed in a residence school above the high school level may be substituted for the required general experience on the basis of one academic year for nine months of experience up to a maximum of four years of study for three years of experience, *provided* the course work is directly related to the kinds of knowledges outlined in a or b of the basic requirements. Directly related course work includes courses in subjects such as engineering, industrial arts, property management, and business administration. (An academic year of study is 30 semester hours or its equivalent. Credit may be given on a pro rata basis for part-time education, or study of less than one academic year.)

(2) Study completed in a business school or technical training institute on the basis of 36 weeks of study for one year of experience up to a maximum of three years of experience, *provided* the course work is directly related to the kinds of knowledges outlined in a or b of the basic requirements.

Experience requirements for higher grade levels

In addition to meeting the basic requirements, applicants for positions at higher grade levels must have experience which has demonstrably provided them with the knowledges, skills, and abilities to perform facility management work at the grade level for which application is made.

The minimum amount of experience required *in addition* to the basic requirements is:

Grade:	*Years*
GS–7	1
GS–9	2
GS–11/15	3

This experience must have demonstrated that the candidate has the following knowledge and abilities:

1. Knowledge of and ability to develop, administer, monitor, coordinate and evaluate programs and procedures involved in operating and maintaining a variety of kinds of Government buildings and facilities.

2. Practical knowledge of construction and maintenance standards and techniques, and of the capability and operating requirements of equipment, machinery, tools and materials.

3. Ability to organize, direct, and coordinate the efforts of a wide variety of skilled trades and crafts workers.

4. Ability to set up and maintain financial and other records systems sufficient to control the use of maintenance funds, estimate future material and funds requirements, and evaluate use of resources.

For example, experience of the required quality may have been gained through performing, assisting, or otherwise participating in activities such as the following:

(a) Management of a maintenance program for office or apartment building complexes, hospitals, recreation facilities, military or other special-purpose installations, including planning maintenance activities, setting standard operating procedures, developing preventive maintenance programs, and planning for optimum use of facilities.

(b) Work involved in conducting surveillance activities over construction and maintenance operations performed by a variety of private contractors, including reviewing project plans and specifications for workability, informing contractors of construction and reporting requirements, supervising operations for conformance with project plans, and investigating requests for contract change orders.

(c) Work in the field of maintenance or construction, including estimating material and labor costs for a variety of construction or maintenance projects (such as construction or maintenance of brick, frame, structural steel, reinforced concrete and other type structures ranging from one or two story buildings to larger structures), directing actual work operations, and maintaining appropriate contacts with the agency, company, or organization funding the project.

ADDITIONAL SKILLS AND ABILITIES REQUIRED

Above entrance or developmental levels, the candidate's experience must also show that he possesses the following skills and abilities:

1. Skills required in dealing with employee organizations, representatives of other agency components, and contractors and suppliers in the private sector. These include such skills as the ability to understand and use complex regulations, contracts, specifications, and other documents, and the ability to negotiate changes in such documents.

2. Ability to establish and maintain good working relationships, and to utilize communications and counseling techniques to foster team effort.

3. Ability to communicate effectively, both orally and in writing.

LEVEL OF EXPERIENCE

For GS–11 positions and below, candidates must have at least six months of acceptable experience at a level of difficulty comparable to that of the next lower grade, or one year comparable to the second lower grade in the Federal service. For positions at GS–12 and above at least one year of the experience must have been at a level of difficulty comparable to the next lower grade in Federal service.

BASIS OF RATING

No written test is required.

Applicants will be rated on an evaluation of their experience, education, or training as it pertains to the knowledges, skills, and abilities re-

quired for this work. Information for rating applicants will be obtained from statements in the application forms, from reference checks with supervisors and others familiar with the applicant's work and abilities, and from other information which may be obtained by the Civil Service Commission.

GUIDE FOR EVALUATING CANDIDATES

The two basic requirements for successful performance in this occupation are (1) managerial and administrative abilities and (2) knowledge of the technical operating and maintenance requirements of buildings, grounds, and other physical facilities.

In evaluating the level of management ability, consideration should be given to the following factors:

—Ability to gather and organize data from various sources;
—Ability to distinguish priorities and plan activities to meet them;
—Ability to evaluate operations and isolate areas for improvement;
—Ability to assign responsibility and delegate authority;
—Resourcefulness and adaptability in meeting changing priorities and new situations;
—Ability to set up and control paperwork and financial records systems, and;
—Ability to communicate effectively both orally and in writing.

In addition, most positions in this series require supervisory ability in order to direct a workforce engaged in operating and maintenance work. For further guidance in evaluating candidates, see also the Qualification Standard for Supervisory Positions in General Schedule Occupations, in part III of this handbook.

In evaluating the extent to which candidates possess the technical knowledges required for facility management work, consider the following factors:

—Knowledge of the capabilities requirements and operating principles of various utilities systems (electrical, plumbing, heating, air conditioning, elevator, water, and sewage systems);
—Knowledge of buildings, grounds, and roads maintenance and construction principles and techniques, and the capabilities of various construction materials;
—Knowledge of estimating and contracting procedures, and ability to interpret and apply contract and engineering specifications; and
—Knowledge of the capabilities of various skilled trades and crafts occupations (building, electrical, mechanical, and equipment operating trades).

SPECIAL PROVISION FOR INSERVICE PLACEMENT

The 50 percent limit on the crediting of trades, crafts, and maintenance work toward general experience does not apply to inservice placement actions. Therefore, for inservice placement actions only, three years of experience in trades, crafts, or maintenance work which has demonstrated a knowledge of and ability to operate, maintain, and repair a variety of plant operating equipment, buildings, utility systems, etc., may be used to meet the entire general experience requirement when it can be demonstrated that the experience provided the knowledges and abilities described above.

PHYSICAL REQUIREMENTS

Applicants must be physically able to perform efficiently the duties of the position, which are described elsewhere. Good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required. In most instances, an amputation of arm, hand, leg, or foot will not disqualify an applicant for appointment, although it may be necessary that this condition be compensated by use of satisfactory prosthesis. Applicants must possess emotional and mental stability. Any physical condition which would cause the applicant to be a hazard to himself or to others will disqualify for appointment.

PRINTING
MANAGEMENT SERIES

Printing Assistant GS–5/15
Printing Specialist GS–5/15
Printing Officer GS–5/15
Supervisory Printing Specialist GS–5/15

Description of work

Printing Assistants and Printing Specialists perform work involved in the procurement of printed material, including establishing specifications and preparing requisitions and contracts for procurement of printing services. In addition, printing specialists may be responsible for inspection of printing plants, for post-audit review of contracts for field printing, for review of the latest developments in commercial printing to determine applicability to the agency's printing activities, and for developing standards or guides for use by subordinate activities or by organizations receiving printing services from the printing organization.

Printing Officer positions may be either of two types. One type of printing officer position involves *managing a printing production plant*, supervising a staff of employees engaged in producing the printed product. Such positions may, in addition, involve supervising employees engaged in obtaining printing from other government printing plants and/or commercial sources. The other type of printing officer position involves responsibility for *managing a printing program*, including responsibility for all printing procurement and printing production for the organization, responsibility for determining printing policy for the organization, and at the department or agency level, responsibility for representing the department or agency to the Congressional Joint Committee on Printing.

Education, experience, and other requirements

Experience

Except for the substitution provided for below, applicants for these positions must have had progressively responsible experience of the length shown in the table below and of the nature described in the paragraphs following.

Grade	Total (years)	General (years)	Specialized (years)
GS–5	3	3	0
GS–7	4	3	1
GS–9	5	3	2
GS–11/15	6	3	3

No additional length of experience is required for positions above GS–11 but a progressively higher level of experience is necessary to qualify for each successively higher grade.

General experience.—Experience which has provided a general knowledge of the varieties of printing equipment, of the methods of production, and of the sources of printing. This could have been gained in such activities as preparing printing procurement requisitions, maintaining accounts of printing expenditures, supervising a cold type composition unit, etc. Experience as a compositor, pressman, bindery equipment operator, or lithographer may be counted toward the total general experience requirement *when* the applicant has had, in addition, *at least 1 year* of acceptable specialized experience.

Specialized experience.—Experience in a printing or publication organization which has provided knowledge of the capabilities of printing equipment and processes, and knowledge of the instructions which a printer must have before he can reproduce manuscript. This experience could have been gained through receiving training in, and writing progressively more diverse specifications for a printer's guidance in printing manuscript; through comprehensive training in, and inspection of, increasingly varied equipment and processes for production analyses; or through supervision of a printing plant. Some positions may require an intensive knowledge of the requirements involved when color lithographic printing, gravure, and color process printing are used on a full-time basis. In addition, experience at other than the lowest level must have demonstrated

ability to deal effectively with customers and/or other persons in the printing industry.

These knowledges and abilities may have been gained by experience in activities such as the following:

1. The determination of specifications for the printing of manuscript, i.e., selection of typography, layout, composition, format, paper stock, and other printer's instructions.
2. The negotiation or administration of contracts for procurement of manuscript and illustrations, printing, binding and allied services, or printing stocks (paper, inks, etc.).
3. The management of a printing plant which produces printing either for the government or for customers in private industry.
4. Production control experience in a large printing plant.
5. Sales representative for a wide variety of printing equipment.
6. Analysis of the price and cost of preparation and production of printing.
7. Planning, estimating, and scheduling printing on a full-time basis for a variety of publications.

Management abilities

For positions of Printing Officers which involve management of a printing program or plant operations, applicants must show experience in administrative and management activities, including such duties as planning and scheduling of work, determining budget requirements, evaluating cost factors, recognizing equipment needs, organizing staffs, evaluating results, etc. (Some positions of Printing Specialists may involve such activities on a staff or advisory basis and would require similar experience or experience and training which has provided an appreciation for management and administrative problems.)

Because of certain special characteristics of printing operations, these management abilities and knowledges should be combined with a technical knowledge of the capabilities of printing equipment and printing plants. While the management knowledges and the technical printing knowledges may have been acquired separately, the best experience for Printing Officer positions is that which has involved the application of management principles to printing activities and problems.

Supervisory positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

Other abilities

Most positions require the ability to establish and maintain effective liaison with members of printing production plants inside and outside the government. Some positions require the ability to work effectively with writers and editors, often in the face of conflicting requests, desires, or requirements. Other positions, in addition to requiring the ability to work effectively with writers and editors, require the ability to negotiate printing contracts with commercial printing firms.

In filling such positions, reference checks, personal interviews, or other appropriate means may be used to insure that applicants possess these qualities to the degree necessary for satisfactory performance of the duties of such positions.

Quality of experience

Eligibility in any grade will be based upon a clear showing that the applicant has had experience of a scope and quality sufficient to give him the ability to carry out effectively technical printing assignments commensurate with the duties of the grade. For any grade, length of experience beyond the required minimum is less important than demonstrated success in fulfilling duties of a responsible nature. Applicants for positions in grades through GS–11 must show either 6 months of experience at a level of difficulty comparable to the next lower

grade or 1 year of experience at a level of difficulty comparable to the second lower grade in the Federal service. Applicants for GS–12 and higher grades must show 1 year of experience at a level of difficulty comparable to the next lower grade in the Federal service.

Substitutions allowed for experience

1. Study successfully completed in a resident school above high school level in journalism, business administration, English composition, commerce, accounting, printing or printing engineering, or graphic or commercial art, industrial engineering, or economics, may be substituted for the required *general experience* at the rate of 1 year of study for 9 months of experience, provided that such study has included at least 6 semester hours per year, or equivalent, in one of the above fields.

2. Completion of a year of graduate study or of all the graduate study required for a master's or higher degree in an accredited college or university in one of the fields of study specified in paragraph "1" above, may be substituted for 1 year of the *specialized experience.*

Basis of rating

Competitors will be rated on a scale of 100 on the quality and extent of their experience, education, and training relative to the duties of the →positions to be filled. Ratings will be based on statements in the application form, any supplemental information forms, and any additional evidence received by the examining office.←

Physical requirements

See part II, Physical Requirements, paragraph 3. In addition, most positions require the ability to distinguish either basic or shades of colors, and applicants must possess emotional and mental stability.

Laundry Plant Manager
Dry Cleaning Plant Manager
Laundry and Dry Cleaning Plant Manager
Laundry Plant Superintendent
Dry Cleaning Plant Superintendent
Laundry and Dry Cleaning Plant Superintendent
GS–5/12

Description of work

Employees in these positions are responsible for advising on or managing the operation of a laundry, dry cleaning, or a combined laundry and dry cleaning plant. The work of the plant *managers* is a blend of office type administrative duties and plant production activities; the plant *superintendents*, on the other hand, are primarily concerned with the management of the plant production activities, as opposed to "office" activities.

Experience requirements

Except for the substitution of education provided for below, applicants must have had progressively responsible experience of the types and amounts shown in the table below, and of the nature described in the statements immediately following:

Grade	General (years)	Specialized (years)	Total (years)
GS-5	3	0	3
GS-6	3	½	3½
GS-7	3	1	4
GS-8	3	1½	4½
GS-9	3	2	5
GS-10	3	2½	5½
GS-11/12	3	3	6

General experience: This experience must have been gained in performing supervisory or nonsupervisory duties of a kind which would acquaint the applicant with methods used or typical actions taken in managing a manufacturing or processing activity, such as controlling production, planning the arrangement of industrial equipment, determining personnel and material requirements, scheduling production processes, or other work closely associated with business administration. This experience need not have been gained in the responsible administration of any of these aspects of business management. If not, though, the experience should have been in close enough association with the administration of such functions to provide a familiarity with the kind of problems commonly encountered by managerial personnel and some of the actions they take to meet such problems.

Specialized experience: This experience must have included performance of supervisory or administrative functions directly concerned with the day-to-day processing operations of laundry and/or dry cleaning plants. For positions which involve managing or superintending operation of combination laundry and dry cleaning plants, the specialized experience must have included at least 3 months of manager experience in a dry cleaning plant, or it must have included or been supplemented by at least 6 months of supervisory or nonsupervisory experience such as would provide knowledge of modern dry cleaning methods. Normally, the specialized experience must demonstrate that, to a degree appropriate to the position to be filled, the applicant can successfully carry out most of the following duties and responsibilities:

For Plant Superintendent positions:

(1) Managing the overall plant activities. This includes keeping aware of the flow of work in the plant, and making adjustments in the workload to assure efficient processing of the workload.
(2) Recommending expansion or contraction of the work force, based on workload requirements.
(3) Insuring that equipment is maintained properly and that an effective preventive maintenance schedule is followed.
(4) Maintaining continuing control over the laundry and/or dry cleaning processes to assure that standard formulas, cycle times, and appropriate techniques and measures are being followed by the work force.
(5) Establishing optimum standards of work quality and investigating reasons for deviations from plant standards.

(6) Keeping informed of new and improved methods of laundering and/or dry cleaning, particularly with respect to the processing of new kinds of fabrics.

(7) Making special investigations of complaints received by the plant manager to determine what action, if any, should be taken in the day-to-day processing of workload.

(8) Determining whether established methods and standards of production are realistic for the physical resources of the plant, and determining what changes in equipment and layout are needed to attain these standards.

For Plant Manager positions:

In addition to providing general supervision over the duties and responsibilities outlined above, an applicant for a plant manager position must demonstrate that he can successfully carry out most of the following:

(1) Arranging adjustment of work flow into the plant so as to maintain an economical balance between workload and plant manpower and equipment facilities.

(2) Identifying and taking action to bring plant operating costs into proper relation with budgeted costs.

(3) Maintaining good customer relations by taking action to uncover or minimize causes of customer complaints concerning loss and damage of articles, delivery of inferior work, and failure to meet delivery schedules.

(4) Arranging for purchase or requisitioning of supplies.

(5) Seeing that adequate records are maintained for customer billing, payrolling, cost determination, and budget estimating.

(6) Determining prices to be charged for individual bundle work and bulk work on basis of operating costs.

(7) Determining equipment needs and recommending purchase of additional equipment and replacement of obsolete and worn-out equipment items.

(8) Determining suitable systems of identification of laundry items in a plant processing personal bundle work.

(9) Making or approving master work schedules.

(10) Ordering and designing studies of plant layout to accommodate new equipment.

(11) Determining the methods to be followed, washing and/or dry cleaning formulas to be used, quality standards to be met, and production goals to be reached.

Quality of experience

The scope and quality of the applicant's experience will determine the grade for which the applicant is qualified. At any grade level, the applicant's overall experience must have been such as to demonstrate conclusively his ability to perform the duties of positions of that level.

For positions through grade GS–11, applicants must show either 6 months of specialized experience at a level of difficulty comparable to the next lower grade, or 1 year at a level of difficulty comparable to the second lower grade, in the Federal service. For positions in grades GS–12 and above, applicants must have at least 1 year of specialized experience comparable to that of the next lower grade in the Federal service.

Substitutions allowed

1. Study successfully completed in a residence school or institution above high school level may be substituted for the required *general* experience at the rate of 1 year of study for 9 months of experience, *provided* that each year of such study included an average of at least 6 semester hour credits (or equivalent) in the subjects of business administration, production management, industrial management, any branch of engineering, or other closely related specializations.

2. Successful completion of an intensive course of training in laundry and/or dry cleaning methods in a vocational school or in a training institution operated by a trade association

of recognized standing in the industry may be substituted for the required *general* experience at the rate of 6 months of such training for 1 year of the required general experience. Where such a training course is directed primarily toward the management of laundry and/or dry cleaning plants, 6 months of such training may be substituted for 1 year of *specialized* experience; additional training of this type may not be substituted for more than 1 year of *specialized* experience, although it may be given extra credit in the rating process.

Written tests

No written test is required for these positions. (However, a supervisory judgment test may be administered in order to determine the supervisory potential of those applicants at the lower grade levels who have not had supervisory responsibilities.)

Physical requirements

See part 2, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

General criteria for evaluating experience

The following are general guides as to considerations which are important in evaluating the qualifications of candidates for laundry and dry cleaning plant manager and plant superintendent positions. They may be used either in the development of criteria for noncompetitive qualifications evaluations, or in the development of rating schedules for competitive examinations.

(1) The most applicable experience to the duties of plant manager and superintendent positions is responsible experience in supervising the operations of laundry and dry cleaning plants.

(2) Experience as wage-board supervisors in laundry or dry cleaning plants is qualifying if it shows capacity for assuming management responsibilities in relation to modern laundry and/or dry cleaning methods and equipment. However, experience in nonsupervisory wage-board positions is not qualifying.

(3) The size and nature of the laundry and/or dry cleaning plant in which experience was gained are often important considerations in evaluating the management functions carried out by applicants. The discussion in the position classification standard relative to the classification criteria provides helpful information in evaluating size of activities and determining the weight to be given such items as the handling of "personal bundle work" as opposed to institutional-type laundry, such as sheets, pillow cases, etc.

(4) Supervisory skills are an inherent requirement of positions covered by this standard. For this reason the discussion of the qualification standards for "Supervisors of Work Classifiable at One-Grade Intervals" under Part Three of Handbook X–118 is particularly pertinent.

Steward, GS–3, 4, 5, 6, 7, 8

Applicants must have had experience in preparing and serving food in mass quantities for large groups of people. This experience must have trained the applicant in the methods of general cooking and baking; equipped him with a general knowledge of food preparation and serving and with a knowledge of prices, dietetics, grades of food, and meal planning; the ability to plan culinary activities to meet meal schedules; the ability to supervise and train other personnel in preparing and serving food; and the ability to prepare pertinent records and reports.

→*Supervisory positions*

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

Grade	Total (years)	Supervisory (years)
GS–3	1½	½
GS–4	2	¾
GS–5	2½	1
GS–6	3	1½
GS–7	3½	2
GS–8	4	2½

Work as a housekeeper or cook in a private home, as a short-order cook, as a waitress, or other work not affording the applicant opportunity to acquire the skills and knowledges required is not qualifying experience.

See part II, Physical Requirements, paragraph 5.

Equipment Specialist GS–5/15

Description of Work

Equipment specialists apply an intensive, practical knowledge of the characteristics, properties and use of equipment to the solution of the technical problems which occur during the preproduction, production, usage and disposal of equipment. They review original equipment designs, recommend changes to avoid anticipated maintenance or operational problems, and develop maintenance policies and procedures for new equipment. They determine the quantity and quality of repair parts and tools required to support equipment during field usage, and negotiate with contractors over production, quality and delivery of the equipment and these parts and tools. They prepare procurement descriptions and evaluate contractor bids against equipment operational requirements. After equipment has been issued to users, equipment specialists conduct training in the proper operation, care and maintenance of equipment. They review equipment malfunction reports and recommend corrective action such as the modification of equipment design. Finally, when equipment is obsolete, they recommend its disposal which includes, in the military departments, the issuance of demilitarization instructions.

Specializations

Equipment specialist positions normally require knowledge of a particular class of equipment. The specializations approved below are defined in the position-classification standard for this series:

Aircraft
Aircraft Propulsion Equipment
Airframe and Airframe Equipment
Automotive
Electrical
Electronic
Food Service
Industrial Gas
Machinery
Machine Tools
Marine
Materials-Handling Equipment
Missile
Missile Airframe
Missile Mechanical
Missile Propulsion
Ordnance
Photographic
Precision Instruments and Scientific Equipment
Railroad
Ships
General

Experience and Training Requirements

Except for the substitutions provided for below, applicants must have had, as a minimum, the quantity and kind of experience specified in the following table:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–4	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11 and above	3	3	6

General experience

Technical or trade and craft experience related to one or more of the areas of specialization which demonstrates possession of:

(a) The ability to read and interpret blueprints and technical publications;

(b) The ability to understand and interpret standard shop terminology;

(c) A practical knowledge of the mechanical principles relating to equipment; a practical knowledge of the construction, operation, overhaul, maintenance, repair or installation of equipment;

(d) A practical knowledge of the basic physical sciences related to types of equipment, e.g., that possessed by an electrician for the electrical option; and

(e) Ability to write and speak clearly.

Examples of qualifying general experience: Qualifying general experience could be gained in the following kinds of work which differ widely in tasks involved or purposes for which performed but which normally provide a fundamental knowledge of the "characteristics, uses, and properties of equipment" within the meaning of this standard. These examples are not exhaustive.

A. Work as an engineering technician which included testing, or data and design analysis together with blueprint preparation and reading, provided the duties required contacts with the manufacturers, users, repairers and suppliers of the equipment.

B. Work as a trades or craftsman which required the interpretation of blueprints and work orders, the understanding of workflow through a maintenance, repair, or similar department, and the use of standard tools, parts and repair procedures.

C. Work as production control specialist which required an understanding of production schedules, processes, and techniques, and contacts with design engineers, mechanics, machinists, and representatives of the operators or manufacturers of equipment.

D. Work as an inspector which required a knowledge of the basic principles involved in the manufacture, operation and use of equipment, components, and related tools, and the repair, storage or production practices related to the equipment inspected.

Nonqualifying general experience: Experience that would provide the kind of abilities and knowledges required would not normally be gained in positions of a routine clerical or administrative nature even when such positions are located in manufacturing or industrial activities.

Specialized experience

Experience in an advisory, analytical, technical, professional, or trade and craft capacity which provided a thorough, practical knowledge of specific equipment or types of equipment such as: how to operate, test, repair, modify or rebuild it; where or how to keep and maintain it; where to obtain technical information on it; what supporting parts, training devices or tools to keep with it; what substitute parts may be cannibalized from it; and when to dispose of it. The experience must show that the applicant possesses the skills, knowledges, and abilities required to perform the work in the equipment area at the grade level for which application is made.

Examples of qualifying specialized experience: Positions in which qualifying specialized experience may be gained are skilled mechanic or maintenance worker, sales or service engineer, or planner or estimator in a technical group dealing with manufacture, utilization, repair, or operation of equipment. These job titles are illustrative only, and are furnished to show the type of skill and ability required. This is not an all-inclusive list of acceptable types of specialized experience. To be considered qualifying, such experience must demonstrate, to the degree required by the position for which application is made, the ability:

a. To review specifications and standards for technical validity;
b. To use technical reference libraries;
c. To apply the requirements of Federal and military specifications to assigned equipment;
d. To confer with contractor's representatives;
e. To identify equipment according to end item application;
f. To determine functions of a part, or component of equipment;
g. To analyze equipment and forecast spare parts requirements;
h. To determine appropriate methods to disseminate information;
i. To determine mortality of parts through knowledge of or past experience with equipment;
j. To determine support equipment necessary for maintenance;
k. To determine if equipment can be economically and safely repaired;
l. To interpret and revise purchase descriptions;
m. To read and interpret engineering change orders, equipment requisitions, shop orders and work orders; and

n. To make concise oral and written presentations of technical equipment information.

Only those elements required by the position to be filled should be selected for evaluation.

Analytical or advisory experience: For GS–9 the experience must have included or been supplemented by at least one of the following analytical or advisory types of work; and for grades above GS–9 at least two such types of work:

A. Analyzing contract or other specifications and examining pertinent equipment to determine if the equipment meets specifications, the extent and acceptability of deviations or the extent of modification required.

B. Analyzing reports of unsatisfactory performance of equipment and recommending or directing the corrective action (e.g., design modification, revision of maintenance procedures, revision of operating instructions, etc.) which is the most economical to accomplish without reducing equipment safety.

C. Analyzing or supervising maintenance, repair, or production operations to determine methods of improvement which will economize and expedite these operations in regard to specific equipment.

D. Negotiation with contractors' representatives or participating in joint planning sessions to determine the quantity and quality of repair parts and tools required to support equipment throughout its life cycle or to assist the contractor to determine causes of equipment malfunctions or failures and develop corrective measures.

E. Analyzing technical data and equipment to determine equipment identity and repair, modification, replacement or storage cost; advising appropriate action such as replacement, storage, or disposal of equipment based on these costs; developing commercial descriptions for procurement of replacements or disposal of surpluses; and providing such technical equipment advice as what parts in a component need repair to facilitate modification.

Nonqualifying specialized experience: Experience in purely routine operation, production, assembly or inspection of equipment which did not require an analytical knowledge or skill or experience in supply which did not require equipment knowledge will not meet any part of the specialized experience requirement.

Quality of experience

For eligibility at grade GS–7 through GS–11, applicants must have had at least 6 months of specialized experience comparable in difficulty and responsibility to the next lower grade in the Federal service, or 1 year comparable to the second lower grade in the Federal service. For eligibility at GS–12 and above, applicants must have had at least 1 year of specialized experience comparable in difficulty and responsibility to the next lower grade in the Federal service.

Guide for evaluating specialized experience

For placement actions at GS–9 and above, specialized experience which demonstrates possession of the following personal skills, abilities and characteristics should be evaluated to the highest quality level.

A. Skill in interpersonal relationships in terms of ability to negotiate with contractor representatives, design engineers, and supply specialists regarding the design, maintenance requirements, wearability characteristics, uses, and applications of equipment. This requires diplomacy, tact, resourcefulness and the ability to work with a minimum of supervision.

B. Ability to reason logically and objectively by relating the ramifications of a particular project, e.g., modification of a component to the economical, safe and efficient operation required of a total equipment subsystem or system.

C. Ability to evaluate concurrently the design, procurement, production, maintenance and supply problems involved in assuring the prompt delivery of equipment to the using forces.

(TS 83)
July 1964
Reprinted without change
December 1975 (TS 156)

D. Ability to function effectively under the pressure created by time limitations, project priorities, costs, and operational requirements.

E. Ability to write lucid and accurate narrative reports on technical equipment problems.

F. Initiative (self-reliance and the ability to undertake new assignments).

Substitution of education for experience

A. Successfully completed residence study in a college or university may be substituted on the basis of 1 year of education for 9 months of experience for the general experience requirement provided such study included at least 12 semester hours per year of engineering or related subjects such as mathematics, physics or chemistry.

B. Full-time resident study in a technical institute above high school or trade school level may be substituted month-for-month for the required general experience.

C. Completion of a full 4-year curriculum in a technical or vocational high school may be substituted for 6 months of general experience.

D. Completion of a resident trade school course of at least 1 year in the manufacture, repair or maintenance of equipment may be substituted for 1 year of the required general experience.

Supervisory →positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

Basis of Rating

No written test is required. Applicants will be rated on a scale of 100 on the quality of their experience and training as it pertains to the knowledge, skill, and abilities important to the proper performance of the duties of an equipment specialist. This rating will be determined from an evaluation of their experience and training as described in their application forms and upon other information which may be secured by the Civil Service Commission. The quantity of experience will not, in itself, be accepted as proof of qualification. It will be to the applicant's advantage to provide a clear and complete description of any pertinent experience or training he may have gained including the types of projects on which he has worked.

Physical Requirements

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

GENERAL EDUCATION AND TRAINING SERIES

General Education and Training Series GS–5/15

DESCRIPTION OF WORK

Persons in these positions advise on, administer, supervise or perform research or other professional work in the field of education and training when the work is of such generalized or specialized miscellaneous nature that the positions are not more appropriately classifiable in any existing professional series in this or any other group. The education and training work may involve a combination of characteristics not specifically provided for in other series of the Education Group, or it may require knowledge of two or more academic disciplines, or it may require professional knowledge of a specialized field which is not identifiable with any existing series.

BASIC REQUIREMENTS FOR ALL GRADES

For all grades, candidates must have successfully completed a full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree which included or was supplemented by major study in education or in a subject field appropriate to the work of the position.

GS–5.—The basic requirements which apply to all grades are fully qualifying for grade GS–5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS–7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in a field of education or in a subject field with which the position is directly concerned.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS–7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields* (*years*)
GS–7	1
GS–9	2
GS–11 and above	3

For grades GS–11 and below, at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS–12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS–7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS–7	One full academic year of graduate education.
GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two full academic years of graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph. D. or equivalent); *or* Three full academic years of graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least 2 full academic years of graduate study is required when— a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature.

b. The knowledges required for the work are *typically and preferably* acquired through *graduate study.*

c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.

GS–12 Research positions. Completion of all requirements for a doctoral degree (Ph. D. or equivalent) for appointment to such positions as meet the following criteria:

a. The position involves primarily research or very similar research-type exploratory development of a creative or advanced scientific nature.

b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph. D. or equivalent) level.

c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (Thirty semester hours, or the equivalent, of part-time graduate education may be considered to be equal to 1 full academic year of graduate education.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this handbook must be met.

QUALITY OF EXPERIENCE

Qualifying professional experience is experience in a capacity related to the work involved in the position. This experience must have required the application of professional knowledge of the theories, principles, methodologies and practices underlying the particular field with which the position is concerned, and must have demonstrated ability to relate and apply this knowledge effectively to the education and training program area involved.

Note: Some professional education positions appropriately classifiable in this series involve professional work in connection with grants or similar funding activities to further educational progress. For such positions, experience which involved professional work of this nature, which was gained in an occupational area similar or closely related to the work of the position, is qualifying professional experience, *provided such experience involved professional judgments* of a kind and level of difficulty and responsibility essential to successful performance in the position to be filled.

ADMINISTRATIVE AND SUPERVISORY EXPERIENCE

For positions which are *administrative* in nature, the applicant must have demonstrated the ability to perform successfully administrative duties, such as planning, organizing, and monitoring studies.

For *supervisory* positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

WRITTEN TEST

The Federal Service Entrance Examination written test battery is required for positions at grades GS–5 and GS–7. It should be waived for in-service placement actions but not for appointments outside the register.

No written test is required for positions at grade GS–9 and above.

BASIS OF RATING

Applicants for grades GS–5 and GS–7 will be rated on the basis of their written test scores and an evaluation of their education, training, and experience. Applicants for grades GS–9 and above will be rated on the basis of an evaluation of their education, training, experience and other qualifications in relation to the requirements of the specific positions for which they are being considered. A review will be made of the training and experience of each applicant as described in his application form and as supported by information which may be obtained from his supervisors and others familiar with the nature and quality of his work. In rating, consideration will be given to evidence of the quality and scope of his training and experience and of the extent to which he possesses the knowledge and abilities necessary to successful performance.

SELECTIVE PLACEMENT

Many positions in this series demand specific competence in a particular area. For such positions, consideration may be limited to those candidates whose records show evidence of the required capabilities.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3, except that there may be a few positions suitable for the blind. In addition, applicants must possess emotional and mental stability.

EDUCATION AND TRAINING TECHNICIAN SERIES

For filling various one-grade interval positions in the Education and Training Technician Series, GS–1702*

Education Aid GS–1/4

Supervisory Education Aid GS–5

Education Technician GS–4 and above

Training Technician GS–4 and above

DESCRIPTION OF WORK

Employees in positions in this series perform nonprofessional work in education and training activities. Education aids and education technicians perform duties in support of work of professional education personnel in educational activities; training technicians perform duties in support of training programs. The duties of the positions vary with the kind of programs, the specific type of assignment, and with the grade of the position. The positions range widely in kind and level, from that of an aid who carries out support duties (e.g., teacher aid) to assist professional teachers, to that of a technician who performs independent work which requires the application of specialized or technical knowledges and skills in restricted phases of a particular education or training area. An example of the latter is a training technician who is responsible for the planning, direction and administration of the testing program for a training center when the work does not require full professional knowledge of educational tests and measurements.

The work of positions in this series requires ability to acquire and to apply a practical knowledge and understanding of the program policies, and other requirements relating to the assignment.

EXPERIENCE, TRAINING AND OTHER REQUIREMENTS

Grade GS–1

For grade GS–1, no experience, training, or education is required. No written test is required. Applicants must be interested in and willing to help people by performing work in an education program and must show evidence of likelihood of success in the work assignments.

Experience requirements

Except for the substitutions provided for below, applicants must have had qualifying experience in the amounts shown in the following table:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–1	0	0	0
GS–2	½	0	½
GS–3	1	0	1
GS–4	1½	½	2
GS–5	2	1	3
GS–6	2	2	4
GS–7	2	3	5
GS–8 and above	2	4	6

General experience

This is experience which has been gained in work of a clerical nature, *or* which involved dealing with others individually or in groups (e.g., camp counselor) or other work which demonstrated the aptitude for acquiring the particular skills and knowledges needed for the work of the position for which application is made.

Specialized experience

This is experience which has demonstrated that the applicant has acquired and is able to apply the knowledges, skills, and abilities which are appropriate to the particular nature and grade level of the position.

Typically, such experience is gained in a line of work which is basically similar or closely related to the work of the position to be filled, or in the same specific program area with which the position is concerned or in a similar or closely related kind of program. For example, experience as a dormitory assistant in a school or institution which boards children is qualifying for Education Aid in a Government boarding school if the experience included duties which involved more than custodial care and were part of the school's total program of child

*This standard does not apply to support positions which are primarily clerical in nature and therefore classifiable in an appropriate clerical series.

development (e.g., instructing children in the practical aspects of living, such as providing instruction in personal hygiene, safety practices, good manners, etc.). As another example, work as an assistant in a college registrar's office which involved screening course applications to determine whether prerequisites are met, or involved compiling and analyzing short- and long-range data on trends in courses given and taken, grades obtained, etc., is qualifying for positions with similar functions in Government training centers.

Excess specialized experience may be credited as general experience.

Supervisory experience

For supervisory positions, see the qualification standards for Supervisors of Work Classifiable at One-Grade Intervals, in part III of this handbook.

QUALITY AND LEVEL OF EXPERIENCE

For eligibility at *grade GS–4*, the 6 months of specialized required experience must have been comparable in difficulty and responsibility to the GS–3 level.

For eligibility at *grade GS–5*, candidates must have had at least 1 year of experience comparable in difficulty and responsibility to the GS–4 level, of which at least 6 months must have been GS–4 level specialized experience.

For eligibility at *grades GS–6 through GS–11*, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service, or 2 years comparable to the second lower grade in the Federal service. For eligibility *at GS–12 and above*, at least 1 year of the required specialized experience must have been comparable in difficulty and responsibility to the next lower grade in the Federal service.

For any grade level, the required amount of experience will not in itself be acceptable as proof of qualification for a position. The applicant's total record of experience, education or training must show that he has the ability to perform the duties and responsibilities of the position to be filled.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

GS–2: Successful completion of a full 4-year or senior high school curriculum may be substituted in full for the general experience requirement for grade GS–2.

GS–3: Successful completion of 1 year of post high school study in a resident school or institution may be substituted in full for the general experience requirement for GS–3.

GS–4: Two years of study as described for GS–3 above may be substituted for 2 years of experience, including ½ year of specialized experience, and meets in full the experience requirements for GS–4, *provided* the study (*a*) included subjects or fields closely related to the work of the position, *or* (*b*) was supplemented by experience in activities which offered the opportunity to acquire and demonstrate the specialized skills and abilities required by the position. (The supplementary experience may have been gained, for example, in part-time or summer employment or in voluntary work in training recreation or education programs or community organization.)

GS–5: Successful completion of a full 4-year course of college study may be substituted for 3 years of experience, including 1 year of specialized experience, and fully meets the experience requirements for GS–5, *provided* the study (*a*) included subjects or fields closely related to the work of the position, *or* (*b*) was supplemented by experience as described for GS–4 above.

Appropriate education and training other than that outlined above, such as training in manpower development programs, "New Careers" programs, or agency internal training courses, will be granted credit, depending upon its applicability and extent. At any grade, post high school education may be partially substituted for required experience at the rates of substitution indicated above.

EDUCATION AND TRAINING
TECHNICIAN SERIES

WRITTEN TESTS

No written test is required for competitive appointment to positions in grades GS–1, 2, or 3. For some positions in GS–4 and GS–5, a written test may be required for competitive appointments only. Written tests should be waived for in-service placement actions.

INTERVIEW

Before appointment, qualified candidates may be requested to appear for an interview. The purpose of the interview is to observe appearance and behavior and to aid in determining whether the applicant has the interest, motivation and other personal qualities essential to effective performance of the work.

BASIS OF RATING

Competitors for all positions will be rated on a scale of 100. The basis of rating will be:

For GS–1: An evaluation of the applicant's willingness to do very simple and routine work in an education program; his dependability; and his ability to work safely.

For GS–2 and above: An evaluation of education, experience and training in relation to the program setting and duties of the position.

Some positions at GS–4 and GS–5 may be filled from registers established under a broad-band examining plan. In this event, the rating will include the scores made on the written test required in that plan in addition to the evaluation of education, experience, and training. The information for evaluating experience, education, and training will be taken from the application form and any additional information which may be obtained through supplemental forms and reference inquiries.

SELECTIVE PLACEMENT

For many positions in this series, different program needs may require specialized background knowledges and skills. In filling such positions, consideration may be limited to those candidates whose records show evidence of the required capabilities.

SPECIAL REQUIREMENTS FOR POSITIONS INVOLVING CONTACTS WITH OTHERS

The work of aid and technician positions in this series may involve substantial contacts with others, individually or in groups. The duties performed require such qualities as a clear speaking voice, tact, and capacity for effective contacts. Evidence that the applicant possesses these qualities to the degree necessary for satisfactory performance of the duties of the position may be obtained through reference checks, interviews, or other appropriate means.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3, except that there may be a few positions available for the blind. In addition, applicants must possess emotional and mental stability.

GUIDE FOR EVALUATING EXPERIENCE, EDUCATION, AND TRAINING

In ranking individuals, detailed facts about the position requirements need to be established. For a position which requires specialized knowledge and abilities in a particular area of education or training (e.g., accreditation) or in a subject field (e.g., business administration) or in a certain type of function (e.g., supervision of children's activities), experience gained in the particular kind of work and in the same or a directly related field as the position to be filled should normally be ranked as highest quality. Experience in work which is similar to the duties of the position but in a less closely related field, or experience in work which is different from that of the position but in the same or closely related field, should be ranked at lower levels, or as nonqualifying, depending upon the extent of relatedness and needs of the position.

Education or "in-house" other special training which is fundamental or otherwise directly re-

lated to the particular requirements of the position should be ranked higher than other qualifying education.

For most *aid* positions, a particular capacity for successful interpersonal relationships, for sensitivity and effectiveness in dealing with the young or the deprived or the handicapped (depending upon the program setting of the position) is of overriding importance. For such positions, experience which demonstrates this capacity in a high degree should be given a higher quality level than education or training courses alone. (An example of such positions is that of Education Aid concerned with the practical guidance of children in boarding schools. For these positions, similar experience in a boarding school or as a children's camp counselor or children's recreation leader or other similar experience can provide ample demonstration of the needed qualities.) Where such experience is coupled with pertinent training courses (such as in child care), the combination should be accorded highest quality for positions requiring these qualities.

For most *technician* positions, there should be demonstrated evidence that the candidate possesses knowledge of the area of specialization of the position and of the particular program, its requirements and the procedures involved. Such knowledge may have been obtained on the job or in training courses specifically related to the work of the position. The quality level to be given to the knowledges thus obtained would depend upon the extent to which the duties and particular grade level of the position require it. Combinations of specialized experience and related training should be accorded a higher quality level than either alone.

Technicians in positions which have substantial duties involving advising others require a capacity for effectiveness in dealing with people. This ability is an important factor to be considered in addition to the knowledge requirements and, as such, should be given due weight in ranking. Demonstrated evidence of possession of this capacity is necessary for such positions.

EDUCATION AND VOCATIONAL TRAINING SERIES

Education and Vocational Training Series, GS–1710, GS–5/15

DESCRIPTION OF WORK

Employees in these positions perform professional work in Federally operated programs of education and vocational training. Many of them serve as teachers, instructors, supervisors, and administrators in academic, technical-vocational, or special education programs at elementary or secondary school, college or graduate levels. Others provide professional support to the education staff by serving as education specialists who evaluate, develop, or advise on educational materials and instructional aids, and who specialize in subject-matter areas or in such functional areas as guidance, educational tests and measurements, training aids, and education administration. Some employees serve as education advisers on and managers of education programs for military personnel. (*Note:* For a list of kinds of positions, authorized titles, and brief descriptions of the work, see Attachment.)

EXPERIENCE, EDUCATION, AND OTHER REQUIREMENTS

State certification requirements

When an agency determines that it is necessary to get or maintain State accreditation of a Federal school, an applicant who will be employed in that school must meet that State's certification requirements.

The period of time allowed teachers and others to become State-certified will be that period of time which the State concerned allows generally.

Basic requirements for all positions

Applicants must have:

A. Successfully completed a full 4-year course leading to a bachelor's degree (any major) from an accredited college or university;

AND

B. Met the requirements of *any one* of the following four ways of qualifying (elaborated in greater detail below):
   (1) Training completed under an "*approved-program*" *approach;*
   (2) Training completed under the *course-credit-accumulation* system;
   (3) Successful performance in *National Teacher Examinations;* or
   (4) Specified *combinations* thereof.

These requirements may have been included in, or supplementary to, the minimum education requirement specified in paragraph A.

1. SUCCESSFUL COMPLETION OF A TEACHER EDUCATION PROGRAM UNDER AN "APPROVED-PROGRAM" APPROACH. Such a program represents a full, balanced course of teacher education (including a subject area of concentration and supervised student teaching), designed and given by an accredited institution of higher education, *and evaluated and approved by a recognized approving body.* The applicant's program must have been appropriate to the school level and/or subject or functional field pertinent to the position for which application is made.

OR

2. SUCCESSFUL COMPLETION OF REQUIRED KINDS OF COURSES AND SEMESTER HOUR CREDITS in an accredited college or university, and other specified preparation, as set forth on pages 2 and 3, immediately below, for the different kinds of education and training positions.

2. (cont.) For this way of qualifying, the minimum education requirement for all positions must have included or been supplemented by at least *18 semester hour credits in Education* [1]. *And*, for the different kinds of positions, *additional* requirements are as specified in the listing immediately below.

For positions (including "supervisory") in the following categories	Additional specified requirements
Elementary Education Teacher (Elementary) Teacher Supervisor (Elementary) Education Specialist (Elementary) Principal-Teacher (Elementary) Also, see Special Programs category.	6 semester hours in Education. Total academic preparation must have included at least 12 semester hours in Elementary Education. Applicant's total preparation must also have included completion of appropriate supervised student teaching,[2] or at least 5 months of successful, appropriate teaching experience.
Academic Subjects (Secondary Education). Teacher (Appropriate Subject) Teacher Supervisor (Appropriate Subject) Education Specialist (Appropriate Subject) Principal-Teacher (Appropriate Subject) Also, see Special Programs category.	24 semester hours in an appropriate subject field. Applicant's total preparation must also have included completion of appropriate supervised student teaching,[2] or at least 5 months of successful, appropriate teaching experience. [*Note:* Positions involving more than one subject field will be filled by selective certification from one or more registers, with selection based on a combination of course work and/or experience according to the particular needs of the position.]
Vocational, Technical and Other Subjects. Teacher (Appropriate Subject) Teacher Supervisor (Appropriate Subject) Principal-Teacher (Appropriate Subject) Instructor (Appropriate Subject) Education Specialist (Appropriate Subject)	Training or experience as follows: (a) 24 semester-hour credits in appropriate skilled trade(s), occupation(s), or arts and crafts; *or* (b) a completed apprenticeship in an appropriate skilled trade or craft; *or* (c) 1 year of appropriate experience at the journeyman level.
Special Programs: Teacher: (Special Education) (Remedial Reading) Education Specialist: (Special Education) (Remedial Reading)	In addition to meeting the minimum requirements shown for appropriate specialization of teacher or specialist position above, applicant's total study must include at least 9 semester hours in courses in the particular area of specialization appropriate to the work. For positions in Special Education (applies to education programs for "exceptional" students, i.e., the mentally gifted, the mentally retarded, the blind, the deaf, etc.), this specialized preparation should include, as a minimum, a study of the characteristics (physical, mental, and emotional) of the particular condition under consideration, and a study of the particular teaching methods applicable thereto. Applicant's total preparation must have included appropriate supervised student teaching[2] at least half of which was in the particular area of specialization with which the position is concerned; or at least 5 months of successful teaching experience in the particular area of specialization.

[1] Directly related courses such as Child Psychology may be included in this count.

[2] The supervised student teaching may have been completed as part of a teacher education program in an accredited institution, or through an internship, or obtained through other arrangements for comparable training, or through employment in a teaching job under professional supervision which included observations and evaluation by a qualified critic. (Also, see Special Provision for Certain Positions, page 4 of this standard.)

For positions (including "supervisory") in the following categories	Additional specified requirements
Special Programs—Continued Teacher Instructor Education Specialist	Individual program needs which require particularized preparation, experience, or other qualifications will be the basis for selective certification.
Guidance Guidance-Counselor Teacher-Counselor Guidance Supervisor Education Specialist (Guidance)	6 semester hours in Education courses. Applicant's total academic preparation must have included 12 semester hours in a combination of Psychology and Guidance subjects directly related to Education, such as child psychology, educational psychology, education tests and measurements, and educational, vocational, or child guidance. (Study in these subjects up to a maximum of 12 semester hours will be considered as study in Education.) Also, the applicant's total preparation must have included appropriate supervised practice counseling.[1] [The requirement for supervised practice counseling may be waived by the Civil Service Commission for those positions where agencies will provide a suitable program of supervised counseling within the first year of appointment.] For teacher-counselor positions, applicant must also meet the minimum requirements shown above for the appropriate specialization of teacher.
Other Functional Areas of Specialization: Education Specialist	For *all* specialist positions, 6 semester hours in Education.
(Tests and Measurements) (Audiovisual Media) (Instructional Media) (Administration)	Applicant's total study must have included at least 6 semester hours in the appropriate field of specialization.
(Library)	Applicant's total academic preparation must have included at least 12 semester hours of pertinent Library study.
Administration: Principal Education Program Administrator	Applicant's total academic preparation must have included at least 6 semester hours in Education Administration or comparable courses. (For Principal-Teacher positions, also see requirements under the appropriate elementary, secondary academic, or vocational specialization, above.)
Other: Education Services Assistant Education Services Officer	Applicant's total academic preparation must have included at least 6 semester hours of course work (or comparable in-service training) in such pertinent areas as Tests and Measurements, Guidance, or Education Administration.

[1] Supervised practice counseling may be completed in ways similar to that shown in footnote 2, above.

OR

3. SATISFACTORY PERFORMANCE IN APPROPRIATE NATIONAL TEACHER EXAMINATIONS (NTE)*; and, *in addition*, for specified positions, successful completion of appropriate supervised student teaching. This way of qualifying is applicable to teacher and instructor positions only.

The requirement for satisfactory test performance includes both the NTE Common Examinations and an NTE Teaching Area Examination which is appropriate to the subject specialty of the position. A composite score of at least 1100, with not less than 550 on the Common Examination and not less than 550 on the Teaching Area Examination, is acceptable as evidence of the candidate's possession of the minimum academic knowledge requirements for both the professional education field and the particular subject field. The listing of requirements under 2, above, specifies those positions which have a student teaching requirement. (Note: Teaching experience is an acceptable equiva-

*National Teacher Examinations are administered by the Educational Testing Service.

lent only if it provided qualified supervision.)

OR

4. COMBINATIONS of 1, 2, and/or 3, above, as follows:
   (a) Applicants who have successfully completed a full teacher education program under an "approved-program" approach or under the course and credit hour system, but with a specialty area not appropriate to the position to be filled, may meet specialized requirements for the position through completion of supplemental course work (as specified in the listing under 2, above); or, if the position is that of teacher or instructor, through a score of not less than 550 in an appropriate NTE Teaching Area Examination. Requirements for an appropriate school level of student teaching, as may be specified for the position, must be met.
   (b) For teacher or instructor positions only: A score of not less than 550 in the NTE Common Examinations may be substituted for the basic minimum 18 hours in Education required under 2, above, *provided* all other requirements specified for the position are met. Student teaching, as may be required for the position, must have been under qualified supervision and of an appropriate school level.

Special Provision for Certain Positions

For some teacher positions, supervised student teaching or teaching experience is a prerequisite. This requirement may be waived by the Civil Service Commission where agencies will provide a suitable program of supervised student teaching within the first year of appointment.

Additional requirements

For grade GS-5:

Possession of the basic requirements, as specified in *Basic requirements for all positions*, above, will satisfy fully the experience and education requirements for grade GS-5.

For grades GS-7 through GS-15:

In addition to the requirements for positions at the GS-5 level, applicants for the higher grades (GS-7 through GS-15) must have completed graduate study or must have had professional experience of the kind, quality and amount specified below for the various grade levels.

Graduate study may be combined with experience of appropriate kind and quality to meet the experience and education requirements. When combining education and experience, one full semester (a minimum of 15 semester hour credits) of completed study (or equivalent) will be considered equal to ⅓ academic year of experience. One full quarter (a minimum of 10 semester hour credits) of completed study will be considered equal to ⅛ academic year of experience.

In every case, the applicant's total experience and education must demonstrate possession of the knowledges, skills and abilities required for the particular position for which he is being considered.

The following sets forth, by grade level, the additional education and experience requirements for positions at grades GS-7 through GS-15.

EDUCATION AND VOCATIONAL TRAINING SERIES

Additional Education and Experience Requirements for Grades GS-7 through GS-15

Education	*OR*	Experience
For grade GS-7: One full academic year of pertinent graduate study in Education and/or related fields (e.g., psychology, or subject-matter fields), as appropriate for the duties of the positions. *Note:* For an applicant whose basic eligibility is based on performance in the National Teachers Examinations, GS-7 is the highest grade level for which he can qualify on the basis of education alone.		**For grade GS-7:** One academic year of appropriate experience in teaching, educational research, development of education or training materials and aids, educational testing, guidance counseling, educational administration, or other comparable activity. The experience must clearly demonstrate success in the application of the principles, methods, and techniques of education and training, or in developmental work in connection therewith; familiarity with current developments in the education and training field; and, as necessary, knowledge of subject-matter field(s) applicable to the position for which the applicant is being considered.
For grade GS-9: Completion of all requirements for a master's (or equivalent) degree, *or* 2 full academic years of pertinent graduate study in Education and/or subject-matter field, as appropriate for the duties of the particular position.		**For grade GS-9:** Two academic years of appropriate professional experience, of the type defined in the requirements for grade GS-7. For positions of elementary and secondary school teachers at the grade GS-9 level, the nature and quality of the experience must demonstrate competence to perform the following under general supervision: Plan and organize instructional content; devise and apply teaching methods and techniques appropriate to the background interests and abilities of students; and cope with disciplinary problems.
For grade GS-11: Completion of all academic requirements for the Ph. D. degree in Education or for the Ed.D. degree, or, when an advanced level of subject-matter knowledge is required, for an equivalent degree in other appropriate subject field (provided the specified basic requirements are also met), *or* 3 full academic years of pertinent graduate education in Education and/or subject field as just described, will meet grade GS-11 requirements in full. *Note:* GS-11 is the highest grade for which an applicant may qualify on the basis of education alone.		**For grade GS-11/15:** Two academic years of experience of the type defined in the requirements for grades GS-7 and GS-9 and, in addition, 1 academic year of experience of the type indicated below, which is of the kind and quality level appropriate for the position and the grade: For all positions, experience in education and training work which included substantial work in the field of specialized education activity relating to the position. This experience must demonstrate evidence of ability to perform the duties of the position. For teacher positions, this experience must include evidence of a high degree of creativity and ability to plan and carry out individualized learning programs for problem situations, or professional leadership abilities in working with other teachers. For positions for which an advanced level of subject-matter knowledge is required, the experience must have been in an appropriate advanced technical or professional field, or in a specialized field comparable in difficulty to at least college level. This experience must be of a quality that demonstrates conclusively thorough mastery of the subject field, ability to perform independent research, thorough familiarity with source material in the subject field, and ability to develop course content from general guidance on course objectives and educational policies.

Alternate requirements

1. A Master of Arts in Teaching (or equivalent) degree, in a course of study that provided an appropriate program of teacher education, including student teaching, is qualifying at GS-9 even though the undergraduate study may have included little or no course work in Education.
2. Superior academic achievement at the baccalaureate level is qualifying at grade GS-7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS-9. In each case, the following requirements apply:
   a. *Basic* eligibility is based on qualifications other than performance in the National Teacher Examinations and, as appropriate for the position, these qualifications must have included successful completion of supervised student teaching; *AND*
   b. The pertinent criteria in section III of part II, Instructions to Users, of this handbook are met. *Note:* For positions in the GS-1710 Series, the attainment of a "superior score" in appropriate National Teacher Examinations is considered as another qualifying achievement; this requires a composite NTE score of at least 1300, with not less than 650 in the Common Examinations *and* not less than 650 in an appropriate Teaching Area Examination.

Skills, knowledges and abilities required

Each applicant must possess, to the extent appropriate to the grade level of the position, the necessary skills, knowledges and abilities listed below, as pertinent to the particular position for which he is being considered.

All positions require:

Knowledge of current principles and philosophy of Education, its theories, practices and techniques;
Ability to communicate ideas and thoughts orally and in writing;
Ability to secure the confidence, respect, and cooperation of associates, management officials, teachers and other education officials, students, and others in carrying out the functions of the program; and
Ability to exercise tact, initiative, and good judgment in dealing with people.

In addition, particularized knowledges and abilities are required for specific types of positions, as follows:

For all positions with major duties as Teacher or Instructor.	Knowledge of subject field(s), including current developments, problems and trends; knowledge of special teaching principles, methods, and techniques applicable to the pertinent subject field(s); and ability to motivate students and increase their interest in learning, to adapt materials, methods, and techniques of instruction to the particular background interests, learning ability and needs of students, and to particular classroom situations, and to changes and developments in the subject field.
For all Guidance positions	Knowledge of principles, methods, and techniques of guidance; of educational and psychological tests and their application to counseling; and of the broad objectives and content of education and training, programs; and ability to obtain and interpret occupational, economic and other data about the environments affecting counselees. In addition, for *counselor* positions, ability to apply this knowledge in advising and helping students to recognize their potential capabilities, their needs and available means of meeting them; for *specialist* positions, ability to guide and instruct teachers, counselors and guidance personnel in guidance principles, methods, and techniques, and in their application to common counseling problems.
For all Education Specialist positions	Ability to evaluate education and training needs and, in accordance with such needs, to evaluate and develop materials, and/or standards, curricula, and instructional methods, techniques, devices and aids; and to revise same to meet changing needs; also, knowledge of research techniques, and the ability to conduct research programs. For the particular specializations, particular knowledge of the appropriate subject and/or functional area is required.
For Education Services positions	Knowledge of educational testing procedures and ability to administer testing programs; and familiarity with adult education programs, training courses available, and ability to relate program content to the educational and vocational needs and goals of the individual. In addition, for Education Services Officer positions, see requirements for supervisory positions, below.
For supervisory positions	For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.
For Administrator positions	In addition to the qualifications for supervisory positions: Ability to train and develop a staff, and to cooperate and work with associates, professional organizations, State representatives, etc.; and Ability to administer school systems and programs in matters relating to execution of policies of governing boards, supervision of all employees (professional and nonprofessional), development of school philosophy, revision of courses of study to meet changing needs, procurement of textbooks and other instructional equipment, financial planning and reports, planning of new buildings or alterations of old buildings, and, for some positions, directing special research.

Quality and level of experience and education

For all positions, the applicant's experience and education must have been of a level of difficulty and responsibility, and of a quality, scope, and nature sufficient to demonstrate clearly the ability to perform effectively the total job for which he is being considered.

The quality of education and experience, in terms of the knowledges, skills and personal characteristics, will be evaluated in terms of how well they have prepared the applicant for the particular position. For example, for teacher positions, how well they have prepared the applicant to assume independent responsibility for the conduct of classes, and have equipped him to handle day-to-day problems of lesson planning, classroom management and discipline, with effectiveness, insight and understanding.

Specifically, for grades GS–7 through GS–11, at least 6 months of the required experience must have been gained at a level of difficulty and responsibility comparable to that of the next lower grade, or 1 year comparable to that of the second lower grade in the Federal service. For grades GS–12 through GS–15, at least 1 year of the required experience must have been at a level comparable to the next lower grade in the Federal service. The number of years of experience required for any grade level represents the minimum amount of time necessary to qualify for the particular position, but length of time is not of itself qualifying.

Selective placement

For many positions in this series, program needs may require special competencies. Because of the great variability of such needs, they are not in all cases specifically identified in this standard. For example, Teacher (Special Education) is the common title used for all positions which involve teaching exceptional children in a recognized special education area (the deaf, the blind, the retarded, etc.), each of which requires formal specialized preparation.

For some positions in the new and emerging special program areas (e.g., programs for the disadvantaged), little or no formal undergraduate or graduate professional requirements beyond the basic requirements for teachers have as yet been firmly established. However, it is important that the applicant's record of training and experience demonstrate that he is capable of filling the position according to the special needs of the program; this may be demonstrated through appropriate course work, seminars, workshops, institutes, in-service activities, or community action programs, which are directly or closely related to the special program area of the position, or other evidence of special interest or capacity to do the work.

In such cases, consideration may be limited to those candidates whose records show evidence of the required capabilities.

INTERVIEW

Competitors who meet the experience and education requirements may be required to appear for an interview. The purpose of the interview is to observe and evaluate firsthand highly important personal characteristics and qualifications of the applicant to determine whether he possesses certain qualities essential to the successful performance of the duties of the position. If the applicant does not demonstrate these qualities, he may be declared ineligible. Among the factors on which the applicant will be examined are:

1. Appearance, bearing, maturity, and manner.
2. Ability in oral expression as reflected in the clarity of his speech and choice of words; ability to express himself logically and to speak effectively and convincingly, and to think objectively.
3. Stability and social adjustment.
4. Interest and motivation.

BASIS OF RATING

The numerical rating will be based on an evaluation of the applicant's education, experience, and special skills and abilities in relation

to the knowledges, abilities, and other qualities specified as necessary for the kind of position for which he is being considered. Ratings will be based on a total evaluation of the information contained in the applicant's own statements of experience and education and on any additional information which may be obtained through confidential inquiries.

GUIDE FOR EVALUATING QUALITY OF EDUCATION AND EXPERIENCE

The following guide applies directly in the evaluation of candidates for teacher positions. It is also useable as a guide for positions in other specializations in this series but is not intended to be applied in its entirety for such other positions. Certain rating considerations such as classroom teaching ability, while very important for a teacher position, would not be of equal importance for a position of education specialist in tests and measurements. The primary needs of *the particular position to be filled* should be taken into account in selecting the rating elements; only those factors which are applicable should be used, and others added or substituted which would be more pertinent to the particular specialization.

Elements for consideration in rating candidates for positions of teachers may be grouped into three basic factors which are equally essential for success on the job. These include:

1. Professional knowledge
2. Teaching ability
3. Personal qualities

Elements to be evaluated under each factor:

1. *Professional knowledge.*—Evaluation should cover both the kind and quality of education and experience and the applicant's understanding of the content of his education, including fundamentals of Education and knowledge of subject matter to be taught.
2. *Teaching ability.*—Evaluation should cover the following:
   a. ability to plan, organize, and present material geared to the level and types of students;
   b. ability to understand and communicate with students;
   c. ability to handle problems and disciplinary cases and to guide and control activities of a group;
   d. ability to make teaching and learning interesting and alive;
   e. ability to adapt material to particular needs and interests of the students;
   f. ability to advise students on their individual problems;
   g. intelligence;
   h. clarity in expression, both orally and in writing.
3. *Personal qualities.*—Evaluation should cover such qualities as poise, adaptability, maturity, common sense, alertness, initiative, and imagination.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

AUTHORIZED TITLES
and
abbreviated descriptions of work

Position titles[1]	Descriptions of work
Teachers and Instructors:[2]	
Teacher (Elementary)	Instructs in elementary school programs.
(Appropriate subject field, e.g., English, or History).	Instructs in secondary schools (or comparable schools) in particular subject field.
(Remedial Reading)	Diagnoses reading deficiencies of students and applies corrective techniques in teaching improved reading in special service programs of remedial reading, at elementary or secondary school levels.
(Special Education)	Teaches in special education programs for exceptional children. *Note:* Each exceptional area (the mentally gifted, the mentally retarded, the emotionally disturbed, the socially maladjusted, the blind, the deaf, etc.) constitutes a recognized specialized field of teaching. "Teacher (Special Education)" is the authorized title for all such positions.
Teacher	Teaches basic education or combinations of elementary and/or secondary school level subjects in special programs, such as programs of education for disadvantaged youth, basic education for adults. (Also, see footnote 1.)
Teacher Supervisor (Appropriate field).	Coordinates and supervises the education program of a subject-matter or functional department (usually in secondary schools); typically, functions as the head or chairman of the department.
Instructor (Appropriate subject field).	See Footnote 2.
Supervisory Instructor (Appropriate subject field).	
Guidance Positions:	
Guidance Counselor	Through group and/or individual sessions, provides educational, vocational and personal-social guidance and counseling services to students.
Teacher-Counselor	In addition to guidance counseling, as immediately above, instructs in school or comparable education programs.
Guidance Supervisor	Directs guidance programs and counseling services of the school(s).
Education Specialist (Guidance)	(See "Education Specialists", next below.)

[1] Parenthetical titles are added, when appropriate, to the basic titles of nonsupervisory and supervisory positions, as indicated in this chart. However, in any type of position in this series, the parenthetical title is not used for positions requiring specialized knowledge of more than one subject field or of areas identified with but not elsewhere titled in this series.

[2] The title of *Teacher* applies to professional positions that involve instructing in elementary or secondary (or comparable) school level programs.

The title of *Instructor* applies to professional positions that involve instructing in higher education programs (i.e., at post-secondary, college and graduate levels), or in special subjects or education programs not otherwise covered in the elementary or secondary school systems.

The title of *Training Instructor* is not appropriate for positions in this series. It applies to positions in the Training Instruction Series, GS-1712.

Position titles [1]	Descriptions of work
Education Specialists	Perform or supervise performance of work, as follows:
Education Specialist Supervisory Education Specialist	Works in two or more specialized areas described below, or other specialized functions identified with but not elsewhere titled in this series.
(Elementary) (Appropriate Subject) (Special Education) (Remedial Reading)	Develops, plans and develops, or reviews and evaluates, educational or training programs and materials such as curricula, texts, instructional guides, trainee work books, examinations and other instructional materials in the pertinent area of specialization.
(Guidance)	Assists and advises counselors, teachers, and other education and training officials by developing programs and materials for their use in the educational, vocational, and personal-social guidance of students.
(Tests and Measurements)	Develops educational tests and other instruments and procedures for use of teachers and other education and training officials in measuring and guiding the progress, achievement, and proficiency of students, and in assessing the effectiveness of the education and training programs.
(Instructional Media)	In support of instructional programs, devises, selects, evaluates, and guides the utilization of appropriate educational or training aids and media, or supervises a program for the acquisition, development, production, distribution and/or maintenance of these aids.
(Audiovisual Media)	Performs as described for the specialist in Instructional Media except that he is concerned with the development and/or application of such media as film, television, radio, recordings, etc.
(Administration)	Advises and assists education officials in such matters as: planning for the development and maintenance of suitable facilities and equipment; fiscal planning, accounting and control; personnel planning and accounting; scheduling school input quotas and the use of available space, equipment, and supporting services; maintenance of records and reports systems.
(Library)	Selects, organizes, and guides students and teachers in the use of the school library materials.
Administrator positions:	
Principal	Directs educational programs of one or two, or a few small, elementary and/or secondary schools.
Principal-Teacher (Elementary)	Combines duties as elementary school principal and teacher.
Principal-Teacher (Appropriate subject).	Combines duties as secondary (or comparable) school principal with duties as teacher in a particular subject-matter area.
Education Program Administrator	Serves as superintendent of a group of elementary and/or secondary schools for an area, with responsibility for their administrative management and maintenance; or provides broad staff direction of education programs (elementary, secondary, or adult) from agency national or area headquarters levels; or directs the activities of Federally operated in-service schools or staff colleges which offer advanced technical or professional training of graduate school level for military and/or civilian personnel of the Federal Government.
Other:	
Education Services Officer	Responsible for organizing, planning, directing, promoting and arranging for education programs for the military personnel of a base, area, command, or one of the services. Provides advisory services on education and training goals and opportunities, and is in charge of one or more education centers which provides for the testing, counseling, classroom teaching, and other instructional and administrative activities of the programs which may range from basic education through secondary and technical/vocational, undergraduate and graduate levels.
Education Services Assistant (GS-5 and GS-7 only).	Assists the Education Services Officer in the above functions by performing the day-to-day functions of educational counseling, testing, and administration, under his supervision.

TRAINING INSTRUCTION SERIES

Training Instructor, GS–5/13
Supervisory Training Instructor, GS–9/15
Training Administrator, GS–9/15
Training Specialist, GS–5/14

DUTIES

Incumbents of positions covered by this standard perform work involved in a program of instructional training in an occupation or other subject, when the work requires a practical knowledge of the occupation or subject to be taught *and* a practical knowledge of the methods and techniques of instruction. They may be instructors or supervisors of instructors in specific subject areas, may develop or review special subject-matter course materials, training aids, and manuals for training programs, or may administer training programs.

The duties of some positions will include demonstration in the use of equipment, techniques, principles and practices of the subject being taught.

EXPERIENCE AND TRAINING REQUIREMENTS

Except for the substitution of education provided for below, applicants for these positions must have had general and specialized experience of the length specified in the table below and of the nature described in the statements that follow:

	General (years)	Specialized (years)	Total (years)
GS–5	3	None	3
GS–7	3	1	4
GS–9	3	2	5
GS–11–15	3	3	6

General experience.—Practical and progressive experience or training in an occupation or subject appropriate to the position to be filled. This experience must show evidence of sufficient knowledge and ability to demonstrate, explain, and instruct students in the use of equipment, techniques, principles, or practices of the occupation, or subject.

Evidence of this knowledge and ability may have been demonstrated by one or any combination of the following:

1. Experience as a teacher or instructor.
2. Satisfactory completion of a formal course or an on-the-jobb training program in the basic principles and techniques of instruction which included supervised practice teaching.
3. Performance of duties involving the supervision or on-the-job instruction of fellow workers in the use of equipment, techniques, principles, or practices of an occupation or subject.
4. Successful completion of a formal vocational training program for the appropriate occupation, in which the applicant demonstrated an unusual and marked aptitude for learning and applying the principles, practices, and techniques of the occupation or subject-matter field.

Specialized experience.—Experience in teaching or instructing in an adult education program, secondary school, college, or industrial establishment in the particular functional or subject field(s) for which the applicant has applied, or in supervising such instruction work; in training program administration; or in the development or review of course materials or training aids.

QUALITY OF EXPERIENCE

For positions at all grade levels, experience shown must have been at a sufficiently high level of difficulty and responsibility to demonstrate the ability to perform the duties and responsibilities of the position for which the candidate is applying. Therefore, at each grade through GS–11, six months of the required experience must have been at a level of difficulty and responsibility comparable to that of the next lower grade in the Federal service, or at least one year of that experience must have been at a level of difficulty and responsibility comparable to that of the second lower grade in the Federal service. For each grade above GS–11, one year of the required experience must have been at a level of difficuty comparable to that of the next

lower grade in the Federal service. To determine the level of difficulty of the applicant's experience, refer to the appropriate position classification standard.

SUPERVISORY POSITIONS

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

SUBSTITUTION OF EDUCATION

For general experience:

Study successfully completed in schools above high school level, including appropriate vocational schools, may be substituted for General Experience at the rate of 1 academic year of study for 9 months of experience, provided such study included at least 6 semester hours (or equivalent) in a subject directly related to the particular subject-matter or functional option for which the applicant is being considered.

For a maximum of 1 year of specialized experience:

One academic year of study completed in a school above high school level, not already used in substitution for General Experience, may be substituted for year of specialized experience, provided such study include at least 9 semester-hour credits (or equivalent) in a combination of subject field and education courses, with a minimum of 3 semester hours in each.

BASIS OF RATING

Applicants will be rated on a scale of 100 on the extent and quality of their experience, education, and training relevant to the duties of the position. The evaluation will be based on information contained in the application, supplemented by information received through qualifications inquiries in terms of factors such as the following, as appropriate:

(1) Extent of special subject-matter knowledge as reflected by the nature of experience gained in and related to the particular subject field.

(2) Ability to establish and maintain effective personal working relations.

(3) Ability in oral and written expression.

(4) Degree of difficulty of subjects dealt with.

(5) Initiative, interest, and capacity in devising special methods and aids, or adopting curricula and methods to serve special needs, or for program improvement.

(6) Degree of responsibility and nature of work involved in planning a program of training, or phase of a program, or in development of operational plans, or in the development of instructional material and training aids.

(7) Ability to select, develop, and supervise a staff.

MEDICAL QUALIFICATION STATEMENT

Applicants must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

VOCATIONAL REHABILITATION SERIES[1]

For supervisory[2] and nonsupervisory positions GS–5/15 in the Vocational Rehabilitation Series, GS–1715

Vocational Rehabilitation Specialist

Vocational Development Specialist

DESCRIPTION OF WORK

The work of employees in these positions involves (1) planning and arranging training programs for individuals whose employability is impaired by problems stemming from physical or mental disability, lack of education and job skills, or social adjustment needs; (2) placement of these individuals in gainful employment; and (3) supervising them during their training and adjustment to the job. This work requires knowledge of the skill requirements of occupations, the employment market, and training facilities in a given area. The work requires the ability to apply the techniques and methodology of counseling in order to motivate the disabled and other individuals in need of training for employment and to help assure their successful adjustment to the training or work situation.

Individuals *disabled* by a physical, mental, behavioral or other impairment are provided these services by *Vocational Rehabilitation Specialists.*

Individuals *disadvantaged* by lack of basic education and job skills or other background condition are provided these services by *Vocational Development Specialists.*

Positions including work covering *both* the disabled *and* the disadvantaged are titled *Vocational Rehabilitation Specialist.*

For a more detailed discussion of this occupation, see the position-classification standard for this series.

BASIC REQUIREMENTS

For all grades

As a basic requirement for all positions, applicants must have education or experience as described under A, B, or C below:

A. Three years of experience which provided a general knowledge of training practices, techniques and requirements in one or more occupations; *or*

B. A full 4-year course in an accredited college or university leading to a bachelor's degree; *or*

C. Any time equivalent combination of experience and education as defined in A or B above. (In combining education with experience, an academic year of study which comprised 30 semester hours or 45 quarter hours will be considered equivalent to 9 months of experience.)

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

For grades GS–7 and above

In addition to meeting the experience or education requirements for GS–5, applicants for higher grades must have the amount and kind of specialized experience indicated below:

Grade:	*Years of specialized experience*
GS–7	1
GS–9	2
GS–11/15	3

Specialized experience

This is experience which has developed skill in the application of the knowledges and abilities required by the work. For both the Vocational Rehabilitation Specialist and the Vocational Development Specialist positions, this experience must show that the applicant possesses the following skills, knowledges and abilities, to the degree appropriate to the kind and level of specialist position to be filled:

1. Ability to obtain and apply occupational information for the handicapped. This includes:
   —Knowledge of training facilities and job information sources in a variety of occupations, and of the employment outlook of a given geographic area;

[1] This standard supersedes the standard for this series which was issued in March 1961.

[2] For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

—Familiarity with the skill requirements of such occupations, and knowledge of the kind of tools, training equipment, books, and costs customarily required for the training of the handicapped for such occupations;

—Knowledge of and ability to evaluate the effects of training and job demands and skill requirements, and of environmental factors, in terms of suitability to the particular limitations of the individuals served by the program;

—Ability to establish and maintain close working relationships with a variety of resources (training and placement officials in public and private agencies, businessmen, etc.).

2. A working knowledge of the interrelationships with the various professional and specialist services typically involved in the vocational rehabilitation process.
3. Ability to employ the methodology and techniques of counseling (but not full professional knowledge) in motivating and encouraging the individuals served by the program.

Qualifying specialized experience may be gained through a number of avenues, for example:

1. Vocational guidance and/or vocational teaching in a recognized vocational rehabilitation program or school or program for the disabled or for the disadvantaged.
2. Developmental or supervisory work in programs of vocational rehabilitation or in training programs for the disadvantaged, in educational institutions, Government, business, or industry.
3. Work in phases of a vocational rehabilitation training program as a regularly designated responsibility—not merely incidental to other assigned duties (for example, regular coordination and liaison responsibility for employment placement of the individuals served by the program who have completed their training).
4. Personnel or employment placement work that provided extensive knowledge of the training and ajustment requirements necessary to place in one or more broad occupational areas persons who have physical or mental disabilities or educational or social adjustment problems.

For *Vocational Rehabilitation Specialists*, the specialized experience must also have demonstrated that the applicant has gained knowledge and understanding of the vocational rehabilitation problems characteristic of the *disabled;* familiarity with available resources suitable to meet the vocational rehabilitation needs of the disabled; and the ability and skill to identify, evaluate and make effective use of such resources for the particular needs of the disabled individuals served.

In like manner, for *Vocational Development Specialists*, the specialized experience must have demonstrated knowledge and understanding of the problems characteristic of the *disadvantaged.* This includes knowledge and understanding of the adjustment problems of the educationally or culturally disadvantaged; familiarity with the available adult basic education and training resources; and ability to recognize problem areas needing special attention, to identify and to evaluate the suitability of remedial resources for the particular learning needs of disadvantaged individuals, and to arrange a learning program suitable to those needs.

SUBSTITUTION OF EDUCATION FOR SPECIALIZED EXPERIENCE

Full-time graduate education may be substituted for specialized experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

(a) *For 1 year of specialized experience.*—One full academic year of graduate education in the field of Vocational Rehabilitation, Vocational or Educational Counseling, or other closely related field. (This

amount and kind of education meets all the requirements for grade GS–7.)

(b) *For 2 years of specialized experience.*— Completion of all requirements for a master's or equivalent degree, or 2 full academic years of graduate education, in a field as described in (a) above. (This amount and kind of education meets all the requirements for grade GS–9.)

The Superior Academic Achievement Standard in section III of part II of this handbook is applicable at grade GS–7.

LEVEL AND QUALITY OF EXPERIENCE

All applicants, except those who qualify solely on the basis of education, must have had, when applying for positions at grades GS–11 and below, at least 6 months of experience at a level equivalent to the next lower grade in the Federal service, or 1 year equivalent to the second lower grade. Applicants for grades GS–12 and above must have had at least 1 year of experience equivalent to the next lower grade.

For any grade, the required amount of experience will not in itself be accepted as proof of qualification for a position. The quality of experience, rather than the length of time employed, will be given primary consideration. The applicant's total education and experience must give positive evidence of ability to perform adequately the duties of the particular position to be filled.

WRITTEN TEST

All applicants for grades GS–5 and GS–7 must pass an appropriate written test.

Basic eligibility for GS–9 and above is determined solely on the basis of the experience and training shown by the applicant. A written test is required for grades GS–9 through GS–12 as an aid for *placement* purposes only; the test is not used in determining basic eligibility.

Written tests should be waived for inservice placement actions but not for appointments outside the register.

PERSONAL TRAITS

For all positions the ability to meet and deal satisfactorily with other people is essential. Personal characteristics required include:

—Ability to gain and keep the confidence and cooperation of and motivate individuals served by the program while they are undergoing training or adjustment to the job;

—Ability to "sell" the vocational rehabilitation program to prospective employers and training institutions, and to maintain good working relationships with them;

—Stamina, persistence, and resourcefulness in pursuing problems to a successful solution.

EMPLOYMENT INTERVIEW

Before appointment, candidates who otherwise qualify may be required to appear for an interview. The purpose of the interview is to aid in determining whether the applicant has the interest, motivation, and other personal qualities essential to successful performance of the work.

BASIS OF RATING

Applicants for grades GS–5 and GS–7 will be rated on the basis of their written test scores.

Candidates for positions at grades GS–9 and above will be rated on the basis of the quality and extent of their experience, education, and training. Ratings will be based on statements in the application forms and any additional information which may be obtained.

SELECTIVE PLACEMENT

Some positions may require particular knowledge or special background experience or training. In filling such positions, consideration may be limited to those candidates whose experience, training and test scores show evidence of the required capabilities.

GUIDE FOR EVALUATING CANDIDATES

In evaluating the experience, education and training of candidates, particular consideration should be given to the following factors:

—Evidence of capacity for effective person-to-person relationships with individuals who have a disability or other condition that impairs their employability.

—Ability to gain the respect, cooperation and confidence of the program participants—the disadvantaged, the blind, the paralyzed, etc.—and to understand the kinds of problems that these participants face.

—Evidence of "meet and deal" abilities (or potential) to make contacts easily, "sell" ideas, and negotiate successfully with employers and training facilities.

—Evidence of ingenuity and persistence in finding successful solutions to problems.

Experience that demonstrated ability to work successfully with the disabled or the disadvantaged, with people in the field of vocational rehabilitation, vocational training, apprenticeship training, or in industry, etc., is obviously very pertinent and valuable. Similarly, any education or training that provided similar pertinent knowledge is also very valuable.

For positions at GS–9 and above, specialized operating experience is most useful. Therefore, for candidates whose qualifications are based on education alone (i.e., graduate study without experience), graduate work which included a suitable practicum is more valuable than graduate work which did not.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3, except that some positions may be suitable for persons who are blind or deaf. In addition, applicants must possess emotional and mental stability.

SCHOOL ADMINISTRATION SERIES[1]

School Administrator, GS–11/15

DESCRIPTION OF WORK

This series includes positions that require full professional knowledge of the theories, principles, and techniques of education and school administration necessary to direct a comprehensive formal education program primarily serving students at any of the basic learning levels of kindergarten through the twelfth grade.

BASIC REQUIREMENTS FOR *ALL* POSITIONS

Professional teaching or staff experience at the elementary or secondary levels. The length of time of this experience is not important. But, the experience must have demonstrated a thorough professional knowledge of the operation of educational programs at either or both the elementary and secondary levels.

AND

Completion of at least one semester (or 18 semester hours), or the equivalent, of post-graduate course work in school administration or school management, and/or curriculum development.

ALTERNATE REQUIREMENTS FOR ALL POSITIONS

In lieu of the above basic requirements, applicants will be considered qualified if they possess a permanent license or certificate for school administrator (either elementary or secondary) issued by one of the States, Territories, or Possessions of the United States, or issued by the District of Columbia.

OR

Candidates may substitute for the basic requirement an alternate requirement of at least 5 years of experience that would be appropriately classifiable in this series. (See the description of work in this standard and in the position classification standard for this series.) To meet the alternate requirement, the 5 or more years of experience must have demonstrated (1) thorough knowledge of the principles underlying the professional work of this series, and (2) understanding, both theoretical and practical, of the methods and techniques applied in performing professional work in this series. This experience must have been of such character and diversity to be a satisfactory substitute for the required education. The experience must have demonstrated that the applicant has acquired a thorough knowledge of the fundamental principles and theories of the work and that the candidate possesses an understanding of the field comparable to that normally acquired through successful completion of a full course of study in an accredited college or university. This alternate requirement is designed to provide appropriate consideration of the qualifications of candidates who have gained professional knowledge and skill through non-traditional or unusual experience paths.

If a candidate meets the alternate requirement, one year of the highest level of work performed may be used to determine the grade level at which the candidate qualifies.

LEVEL OF EXPERIENCE

One academic year of professional teaching or school administration experience at or equivalent to the next lower grade of the General Schedule is required. For example, in a line of progression of GS–5, 7, 9, 11, 12, experience at or equivalent to GS–9 is required for a GS–11 position. Levels of responsibility and difficulty are discussed in the position classification standard for this series. (See also 5 C.F.R. 300, Subpart F.)

SELECTIVE PLACEMENT

For certain positions, selective criteria directly related to the position to be filled may be appropriate. For example, fluency in conversational Spanish or other languages may be required for certain positions at any grade level.

[1] This series covers certain positions formerly covered by the qualification standard for the Education and Vocational Training Series, GS–1710.

See FPM Chapter 332, Subchapter 4, and Appendix B.

QUALITY RANKING FACTORS

For certain positions in this series specific quality ranking factors may be used to identify the better qualified candidates from a group of persons who are basically qualified for the positions. See FPM Chapter 332, Subchapter 4, and Appendix B.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation also may be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving operation of a Federal motor vehicle carry the additional medical requirements specified in Federal Personnel Manual, Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For those positions in which operating a motor vehicle is essential to the efficient performance of the work, applicants are required to:

—possess, or obtain within 30 days of employment, a valid State driver's license, and

—qualify, after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency. (See FPM Chapter 930.)

ELEMENTARY TEACHING SERIES[1]

—Elementary Teacher, GS–5/11
—Elementary Teaching Specialist, GS–5/11
—Supervisory Elementary Teacher, GS–11 and above
—Supervisory Elementary Teaching Specialist, GS–11 and above

DESCRIPTION OF WORK

This series includes teaching or related staff positions that require professional knowledge of the theories, principles, and techniques of teaching and learning necessary to teach students at the basic learning levels of kindergarten through elementary school.

Basic requirements for all grades

Professional knowledge of teaching and learning theories, principles, and techniques as they apply to elementary school students as evidenced by:

a. Completion of a full four year course of study leading to a bachelor's degree at an accredited college or university which included or was supplemented by:
   (1) supervised student teaching; *and*
   (2) at least one course (semester or quarter) in *each* of the following areas:
      (a) general psychology,
      (b) human development,
      (c) history and/or philosophy of education, and
      (d) teaching methods at the elementary school learning levels.

OR

b. Completion of at least one full academic year of professional teaching experience at the elementary school level in addition to completion of a full four year course of study leading to a bachelor's degree at an accredited college or university.

Professional teaching experience is defined for this standard as full and primary responsibility for the instruction of assigned students under general supervision in a recognized or accredited school or institution. This includes responsibility for preparation and presentation of lessons and for the evaluation of students' progress throughout the learning period including a determination of the students' success or failure according to established criteria.

ALTERNATE REQUIREMENT

Candidates may substitute for the basic requirement an alternate requirement of at least 5 years of experience that would be appropriately classifiable in this series. (See the description of work in this standard and in the position classification standard for this series.) To meet the alternate requirement, the 5 or more years of experience must have demonstrated (1) thorough knowledge of the principles underlying the professional work of this series, and (2) understanding, both theoretical and practical, of the methods and techniques applied in performing professional work in this series. This experience must have been of such character and diversity to be a satisfactory substitute for the required education. The experience must have demonstrated that the applicant has acquired a thorough knowledge of the fundamental principles and theories of the work and that the candidate possesses an understanding of the field comparable to that normally acquired through successful completion of a full course of study in an accredited college or university. This alternate requirement is designed to provide appropriate consideration of the qualifications of candidates who have gained professional knowledge and skill through nontraditional or unusual experience paths.

If a candidate meets the alternate requirement, one year of the highest level of work performed may be used to determine the grade level at which the candidate qualifies.

ADDITIONAL EXPERIENCE AND EDUCATION REQUIREMENTS

Requirements for GS–5

Applicants must meet the BASIC OR ALTERNATE REQUIREMENTS FOR *ALL* GRADES above.

Requirements for all positions above GS–5

Applicants must meet the BASIC OR ALTERNATE REQUIREMENTS FOR *ALL*

[1] This series covers certain positions formerly covered by the qualification standard for the Education and Vocational Training Series, GS–1710.

GRADES above *and* have at least one academic year of professional teaching or related professional staff experience which was equivalent to the next lower grade in the General Schedule, as follows:

For positions at:	*One academic year equivalent to—*
GS–7	GS–5 or above.
GS–9	GS–7 or above.
GS–11	GS–9 or above.
GS–12	The next lower General Schedule grade.

SELECTIVE PLACEMENT AND QUALITY RANKING

This series covers a variety of positions some of which may require specialized knowledges and skills not identified in this standard. In appropriate cases, selective factors may be constructed to indicate those knowledges and skills considered *essential* to produce a list of eligibles qualified to perform the duties of the position satisfactorily. The selective factors for a position should represent the *basic* qualifications for the job and must be demonstrably job-related and reflected in the duties and responsibilities assigned to the position. Selective factors must represent knowledges or skills required of a candidate at the time of entry into a position or those which could not be learned without a significant amount of training. An example of a selective factor that may be required is fluency in a language, other than English.

For some positions in this series, especially at the GS–9 and above levels, agencies may request the use of specific quality ranking factors to identify the *better qualified* candidates from a group of persons basically qualified for a position. Properly identified and justifiable quality ranking factors should present a qualification pattern which would most likely assure superior performance in a position. Quality ranking factors also must be directly related to the duties and responsibilities of the position and must be shown to be predictive of superior performance. Examples of quality ranking factors may include knowledge of an area such as remedial reading or knowledge and skill in working in a particular area such as curriculum development, instructional systems design, or training devices development.

Additional guidance concerning the evaluation and documentation of selective and quality ranking factors is provided in FPM Chapter 332, Subchapter 4, and Appendix B.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by satisfactory use of a prosthesis or mechanical aid.

Reasonable accommodation also may be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual, Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

SUPERVISORY POSITIONS

Use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X–118 in conjunction with this standard.

ELEMENTARY TEACHING SERIES

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For those positions in which operating a motor vehicle is essential to the efficient performance of the work, applicants are required to:

—possess or obtain within 30 days of employment, a valid State driver's license, and

—qualify, after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency. (See FPM Chapter 930.)

SECONDARY TEACHING SERIES[1]

—Secondary Teacher, GS–5/11
—Secondary Teaching Specialist, GS–5/11
—Supervisory Secondary Teacher, GS–11 and above
—Supervisory Secondary Teaching Specialist, GS–11 and above

DESCRIPTION OF WORK

This series includes teaching positions that require full professional knowledge of the theories, principles, and techniques of teaching and learning necessary to teach students at the secondary school learning levels.

For further information about the nature of the work performed by employees in this series, see the series coverage standard for the Secondary Teaching Series, GS–1726, and the group coverage standard for positions in the Education Group, GS–1700.

Basic requirements for all grades

Professional knowledge of teaching and learning theories, principles, and techniques as they apply to secondary school students and knowledge of an appropriate specialized subject matter field, as evidenced by:

a. completion of a full four year course of study leading to a bachelor's degree at an accredited college or university which included or was supplemented by:
   (1) supervised student teaching; *and*
   (2) at least one course (semester or quarter) in *each* of the following areas:
      (a) general psychology,
      (b) human development,
      (c) history and/or philosophy of education, and
      (d) teaching methods at the secondary school learning levels; *and*
   (3) 24 semester hours (or the equivalent) of course work in each of the principal fields of instruction. Fields of instruction include, for example, English, mathematics, social studies, physical science, physical education, business, industrial arts, etc.;

OR

b. completion of at least one full academic year of professional teaching experience at the secondary school level in addition to completion of a bachelor's degree.

Professional teaching experience is defined for this standard as full and primary responsibility for instruction of assigned students under general supervision in a recognized or accredited school or institution. This includes responsibility for preparation and presentation of lessons and for the evaluation of students' progress throughout the learning period including a determination of the students' success or failure according to established criteria.

ALTERNATE REQUIREMENT

Candidates may substitute for the basic requirement an alternate requirement of at least 5 years of experience that would be appropriately classifiable in this series. (See the description of work in this standard and in the position classification standard for this series.) To meet the alternate requirement, the 5 or more years of experience must have demonstrated (1) thorough knowledge of the principles underlying the professional work of this series, and (2) understanding, both theoretical and practical, of the methods and techniques applied in performing professional work in this series. This experience must have been of such character and diversity to be a satisfactory substitute for the required education. The experience must have demonstrated that the applicant has acquired a thorough knowledge of the fundamental principles and theories of the work and that the candidate possesses an understanding of the field comparable to that normally acquired through successful completion of a full course of study in an accredited college or university. This alternate requirement is designed to provide appropriate consideration of the qualifications of candidates who have gained professional knowledge and skill through nontraditional or unusual experience paths.

If a candidate meets the alternate requirement, one year of the highest level of work per-

[1] This series covers certain positions formerly covered by the qualification standard for the Education and Vocational Training Series, GS–1710.

formed may be used to determine the grade level at which the candidate qualifies.

ADDITIONAL EXPERIENCE AND EDUCATION REQUIREMENTS

Requirements for GS–5

Applicants must meet the BASIC OR ALTERNATE REQUIREMENTS FOR ALL GRADES above.

Requirements for all positions above GS–5

Applicants must meet the BASIC OR ALTERNATE REQUIREMENTS FOR ALL GRADES above *and* have at least one year of professional teaching or related professional staff experience which was equivalent to the next lower grade in the General Schedule, as follows:

For positions at:	*One academic year equivalent to—*
GS–7	GS–5 or above.
GS–9	GS–7 or above.
GS–11	GS–9 or above.
GS–12	The next lower General Schedule grade.

SELECTIVE AND QUALITY RANKING FACTORS

This series covers a broad and varied spectrum of positions some of which may require specialized knowledge and skills considered essential to produce a list of eligibles qualified to perform the duties of the position satisfactorily. The selective factors for a position should represent the *basic* qualifications for the job and must be demonstrably job-related and reflected in the duties and responsibilities assigned to the position. Selective factors must represent knowledges or skills required of a candidate at the time of entry into a position or those which could not be learned without a significant amount of training. An example of a selective factor that may be required includes a requirement for fluency in a language, other than English.

For some positions in this series, especially at the GS–9 and above levels, agencies may request the use of specific quality ranking factors to identify the *better qualified* candidates from a group of persons basically qualified for a position. Properly identified and justifiable quality ranking factors should present a qualification pattern which would most likely assure superior performance in a position. Quality ranking factors also must be directly related to the duties and responsibilities of the position and must be shown to be predictive of superior performance. Examples of quality ranking factors may include knowledge of and skill in a particular instruction development area such as curriculum development, instructional systems design, or training devices development. Another quality ranking factor may be advanced subject matter knowledge based on experience or training beyond minimum requirements in the subject matter field to be taught.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation also may be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual, Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

SUPERVISORY POSITIONS

Use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X–118 in conjunction with this standard.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For those positions in which operating a motor vehicle is essential to the efficient performance of the work, applicants are required to:

—possess, or obtain within 30 days of employment, a valid State driver's license, and

—qualify, after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency. (See FPM Chapter 930.)

SPECIAL EDUCATION SERIES [1]

—Special Education Teacher, GS-5/11
—Special Education Specialist, GS-5/11
—Supervisory Special Education Teacher, GS-11 and above
—Supervisory Special Education Specialist, GS-11 and above

DESCRIPTION OF WORK

This series includes positions which require professional knowledge and skill in a recognized specialty to teach exceptional students such as the handicapped, retarded, gifted, or emotionally disturbed.

For further information about the nature of the work performed by employees in this series, see the series coverage standard for the Special Education Series, GS-1728, and the group coverage standard for positions in the Education Group, GS-1700.

BASIC REQUIREMENTS FOR ALL GRADES

Professional knowledge of teaching and learning theories, principles, and techniques as they apply to exceptional students as evidenced by:

a. Completion of a full four year course of study leading to a ba .helor's degree at an accredited college or university which included or was supplemented by:
   1. Professional education courses which included supervised student teaching *and* at least one course in each of the following areas:
      (a) general psychology,
      (b) human development,
      (c) history and/or philosophy of education, and
      (d) teaching methods and techniques (elementary or secondary).

AND

   2. 24 semester hours, or two fill semesters, or the equivalent of undergraduate or postgraduate course work in special education which included at least one course, such as a survey course, covering the teaching of exceptional students *and* courses for the appropriate field or fields of specialization covering the following:
      (a) student teaching or a practicum,
      (b) characteristics,
      (c) diagnosis, and
      (d) methods.

Examples of fields of specialization include:
—Educable mentally handicapped,
—Trainable mentally handicapped,
—Learning disabilities,
—Social/emotional problems,
—Deaf and hard of hearing,
—Physically handicapped, or
—Speech and language impaired.

Fields of specialization may be either broader or narrower depending on the nature of the positions to be filled.

ALTERNATE REQUIREMENT

Candidates may substitute for the basic requirement an alternate requirement of at least 5 years of experience that would be appropriately classifiable in this series. (See the description of work in this standard and in the position classification standard for this series.) To meet the alternate requirement, the 5 or more years of experience must have demonstrated (1) thorough knowledge of the principles underlying the professional work of this series, and (2) understanding, both theoretical and practical, of the methods and techniques applied in performing professional work in this series. This experience must have been of such character and diversity to be a satisfactory substitute for the required education. The experience must have demonstrated that the applicant has acquired a thorough knowledge of the fundamental principles and theories of the work and that the candidate possesses an understanding of the field comparable to that normally acquired through successful completion of a full course of study in an accredited college or university. This alternate requirement is designed to provide appropriate consideration of the qualifications of candidates who have gained

[1] This series covers certain positions formerly covered by the qualification standard for the Education and Vocational Training Series, GS-1710.

professional knowledge and skill through nontraditional or unusual experience paths.

If a candidate meets the alternate requirement, one year of the highest level of work performed may be used to determine the grade level at which the candidate qualifies.

ADDITIONAL EXPERIENCE AND EDUCATION REQUIREMENTS

Requirement for GS–5

Applicants must meet the *Basic or Alternate Requirements For All Grades above.*

Requirements for GS–7 and above

In addition to the *Basic or Alternate Requirements for All Grades* above, applicant must demonstrate professional knowledge and skill at the appropriate level evidenced by *experience* in the appropriate specialized field of special education as follows:

For positions at:	*one academic year equivalent to—*
GS–7	GS–5 or above.
GS–9	GS–7 or above
GS–11	GS–9 or above
GS–12 and above	The next lower General Schedule grade.

Substitution of Education for Experience

Alternately, applicants may qualify for GS–7 or GS–9 grade levels by completing post-graduate course work directly related to the special education speciality field(s) of the position being filled as follows:

	Completion of—
GS–7	1 year of full-time graduate education.
GS–9	2 years of full-time graduate education or all requirements for a master's or equivalent degree.

SELECTIVE PLACEMENT AND QUALITY RANKING

This series covers a variety of positions some of which may require specialized knowledges and skills not identified in this standard. In appropriate cases, selective factors may be constructed to indicate those knowledges and skills considered *essential* to produce a list of eligibles qualified to perform the duties of the positions satisfactorily. The selective factors for a position should represent the *basic* qualifications for the job and must be *demonstrably job-related* and reflected in the duties and responsibilities assigned to the position. Selective factors must represent knowledges or skills required of a candidate at the time of entry into a position or those which could not be learned without a significant amount of training. An example of a selective factor that may be required is fluency in a language, other than English.

For some positions in this series, especially at the GS–9 and above levels, agencies may request the use of specific quality ranking factors to identify the *better qualified* candidates from a group of persons basically qualified for a position. Properly identified and justifiable quality ranking factors should present a qualification pattern which would most likely assure superior performance in a position. Quality ranking factors also must be *directly related* to the duties and responsibilities of the position and shown to be predictive of superior performance. An example of a quality ranking factor may include knowledge and skill in working in a particular area such as curriculum development, instructional systems design, training devices development, or administration of a special education program.

For filling positions involving administration or management of special education programs, additional credit may be given to applicants who have completed the education and experience requirements for an administrative exceptional student certificate recognized by a State, U.S. possession, U.S. territory, or the District of Columbia. Such certification typically is based on several years of professional experience in the field of special education and a course of study in special education administration leading to a master's degree.

Additional guidance concerning the evaluation and documentation of selective and quality ranking factors is provided in FPM Chapter 332, Subchapter 4, and Appendix B.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation also may be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

SUPERVISORY POSITIONS

Use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X–118 in conjunction with this standard.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For those positions in which operating a motor vehicle is essential to the efficient performance of the work, applicants are required to:

— possess, or obtain within 30 days of employment, a valid State driver's license, and

— qualify, after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency. (See FPM Chapter 930.)

EDUCATION SERVICES SERIES [1]

—Education Services Specialist GS-5/15
—Guidance Counselor, GS-9/11
—Supervisory Education Services Specialist, GS-11/15
—Supervisory Guidance Counselor, GS-11/12

DESCRIPTION OF WORK

This series includes professional positions the duties of which are to administer, supervise, promote, coordinate, conduct or evaluate programs, activities, or opportunities designed to provide individualized career-related or self-development education plans. The work requires knowledge of education theories, principles, processes, and practices of secondary, adult, and continuing education. Some positions require skill in counseling students or enrollees to establish educational and occupational objectives.

There are two types of positions included in this series that are covered by this standard, i.e., Education Services Specialist and Guidance Counselor. Positions which direct or conduct an education services program for a local installation or higher headquarters, provide liaison services to educational institutions, or monitor developments in the educational field are titled *Education Services Specialist.* Positions which provide counseling services to elementary, secondary, or adult students in developing educational or vocational career plans are titled *Guidance Counselor.*

For further information about the nature of work performed by employees in the Education Services Series, see the classification standard for this series. The sections in that standard entitled Occupational Information and Grading Positions provide examples of duties characteristic of the series and criteria to evaluate the difficulty level of those duties, respectively. This guidance should prove helpful in evaluating the quality of experience a candidate has gained outside of the Federal Government, or in any other position outside of the General Schedule.

[1] This standard covers certain positions formerly included in the Education and Vocational Training Series, GS-1710, dated April 1969 and revised, in part, February 1980.

BASIC REQUIREMENTS FOR ALL GRADES

Applicants for *Education Services Specialist and Guidance Counselor* positions at all grades must meet the requirements below:

Successful completion of a full four year course of study leading to a bachelor's degree from an accredited college or university which included or was supplemented by at least eight undergraduate or graduate level courses as described below:

1. At last one course in (a) and (b).
   (a) *Tests and measurement.* Study of the selection, evaluation, administration, scoring, interpretation, and uses of group and individual aptitude, proficiency, interest and other tests.
   (b) *Teaching methods.* Study of teaching strategies and learning styles of the adult learner. Includes determining adult performance levels, learning activities for adults and evaluating performance.

AND

2. The remaining six courses may be in any one or combination of the following areas:
   (1) *Educational program administration.* Study of the foundation and methods in organizing for adult and continuing education programs. Topics include staffing, planning, programming, budgeting, and methods for determining market for programs. Also covers evaluation of administrative and academic performance.
   (2) *Curriculum development or design.* Study of the principles and techniques for development of curricula for adult or vocational education programs.
   (3) *Adult education.* Study of the adult as a learner. Teaching-learning theories for adults. Models and procedures for planning, designing,

managing and evaluating adult learning activities.

(4) *Guidance and counseling.* Study of the purposes and methods in counseling and guidance. Includes the role of the counselor in various settings, approaches to counseling, uses of tests in the counseling situation.

(5) *Career planning.* Study of career development learning activities, systems, approaches, program coordination, use of educational and community resources, and vocational counseling systems.

(6) *Occupational information.* Study of theories of occupational choice and vocational development and their application to the guidance process. Includes career education and its implication for career guidance services. Identification and utilization of various types of occupational information and resources.

ALTERNATE REQUIREMENT

Candidates may substitute for the basic requirement an alternate requirement of at least 5 years of experience that would be appropriately classifiable in this series. (See the description of work in this standard and in the position classification standard for this series.) To meet the alternate requirement, the 5 or more years of experience must have demonstrated (1) thorough knowledge of the principles underlying the professional work of this series, and (2) understanding, both theoretical and practical, of the methods and techniques applied in performing professional work in this series. This experience must have been of such character and diversity to be a satisfactory substitute for the required education. The experience must have demonstrated that the applicant has acquired a thorough knowledge of the fundamental principles and theories of the work and that the candidate possesses an understanding of the field comparable to that normally acquired through successful competition of a full course of study in an accredited college or university. This alternate requirement is designed to provide appropriate consideration of the qualifications of candidates who have gained professional knowledge and skill through nontraditional or unusual experience paths.

If a candidate meets the alternate requirement, one year of the highest level of work performed may be used to determine the grade level at which the candidate qualifies.

ADDITIONAL EXPERIENCE AND EDUCATION REQUIREMENTS

For GS-5

The basic or alternate requirements above, which apply to all grades, are fully qualifying for GS-5.

For GS-7

Applicants for GS-7 positions must meet the requirements of A or B below:

A. One year of satisfactory performance in a GS-5 or equivalent position that is directly related to the position being filled.

OR

B. Successful completion of one full academic year of graduate education in a field directly related to the position being filled such as educational psychology, adult education, educational administration, educational counseling, or other similarly related areas.

For GS-9

Applicants for GS-9 positions must meet the requirements of A or B below:

A. One year of satisfactory performance in a GS-7 or equivalent position that is directly related to the position being filled.

OR

B. Successful completion of two full academic years of graduate education or all requirements for a master's or equivalent degree, in a field directly related to the

position being filled such as those listed above.

For GS-11

Applicants for GS-11 positions must have one year of satisfactory performance in a GS-9 or equivalent position that is directly related to position being filled.

For GS-12 and above

Applicants for positions at the GS-12 and above levels must have one year of satisfactory performance at the next lower grade or equivalent position that is directly related to the position being filled.

SELECTIVE AND QUALITY RANKING FACTORS

The Education Services Series covers a broad and varied spectrum of positions some of which may require specialized knowledges and skills not identified in this standard. In appropriate cases, selective factors may be constructed by agencies to indicate those knowledges and skills considered *essential* to produce a list of eligibles qualified to perform the duties of the position satisfactorily. The selective factors requested for a position should represent the *basic* qualifications for the job and must be demonstrably job-related and reflected in the duties and responsibilities assigned to the position. Selective factors must represent knowledges and skills required of a candidate at the time of entry into a position or those which could not be learned without a significant amount of training. Examples of selective factors that may be required in education services positions, at any grade level, include a requirement for fluency in a language other than English.

For some positions in this series, especially at the GS-9 and above levels, agencies may request the use of specific quality ranking factors to identify the *better qualified* candidates from a group of persons basically qualified for a position. Property identified and justifiable quality ranking factors should present a qualification pattern which would most likely assure superior performance in a position. Quality ranking factors must also be directly related to the duties and responsibilities of the position and shown to be predictive of superior performance. Examples of quality ranking factors may include knowledge of a functional program, knowledge and skill is using a particular battery of tests, or knowledge of the problems and needs of a specialized group.

Additional guidance concerning the evaluation and documentation of selective and quality ranking factors is provided in FPM Chapter 332, Subchapter 4, and Appendix B.

PHYSICAL REQUIREMENTS—ALL LEVELS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters or adjusted work schedules.

Also, all positions involving operation of a Federal motor vehicle carry the additional medical requirements specified in the Federal Personnel Manual (FPM) Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidential Operators.

The physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

SUPERVISORY POSITIONS

Use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X-118 in conjunction with this standard.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For those positions in which operating a motor vehicle is essential to the efficient performance of the work, applicants are required to:

—possess, or obtain within 30 days of employment, a valid State driver's license, and

—qualify, after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency. (See FPM Chapter 930.)

—Instructional Systems Specialist, GS–5/15

—Supervisory Instructional Systems Specialist, GS–11/15

DESCRIPTION OF WORK

This series includes professional positions the duties of which are to administer, supervise, advise on, design, develop, or provide educational or training services in formal education or training programs. The work requires knowledge of learning theory and the principles, methods, practices and techniques of one or more specialties of the instructional systems field and may require knowledge of one or more subjects or occupations in which educational or training instruction is provided.

For further information about the nature of work performed by employees in the Instructional Systems Series see the classification standard for this series and the Instructional Specialist Grade Evaluation Guide. The factor level descriptions in the Guide provide criteria indicative of the difficulty level of duties found in this series and should prove helpful in evaluating the quality of experience a candidate has gained outside of the Federal Government, or in any other position outside of the General Schedule.

BASIC REQUIREMENTS FOR ALL GRADES

Applicants for all grades must meet the requirements of A *and* B below:

A. Successful completion of a full four year course of study leading to a bachelor's degree from an accredited college or university which included or was supplemented by at least one undergraduate or graduate level course in *each* of the following six (6) areas:

(1) *Learning theory, psychology of learning, or educational psychology.* Study of learning theories as they relate to the design and development of instructional material.

(2) *Curriculum development or design.* Study of the principles and techniques for development of an educational curriculum, based on an analysis of specific subjects or occupations.

(3) *Teaching or instructional methods.* Study of the characteristics, approaches, and techniques of presenting instructional material in a classroom setting. May include a student teaching practicum.

(4) *Educational evaluation.* Study of techniques for evaluating the effectiveness of instructional programs and educational products. Includes development of written and performance tests, development of surveys, analysis of test and survey results, characteristics of norm-referenced and criterion referenced tests; reliability and validity of evaluation instruments.

(5) *Statistics.* Introductory course covering descriptive statistics.

(6) *Research methods.* Survey of research in education. Emphasis on historical, empirical, and experimental methods of research. Practical application of techniques, research design and statistical analysis. Includes performance of a literature search, writing of reviews and critiques of research literature.

AND

B. For work performed in a functional area listed below, two (2) additional undergraduate or graduate level courses in that function as specified below.

1. OCCUPATIONAL ANALYSIS

(1) *Occupational analysis.* Study of the methods and techniques used

[1] This standard covers certain positions formerly included in the Education and Vocational Training Series, dated April 1969, and revised, in part, February 1980 and the Training Instruction Series, GS–1712 dated July 1971 and revised, in part, February 1980.

in analyzing an occupational area. Includes job analysis methods and techniques and task analysis techniques, designing and administering survey instruments.

(2) *Research methods.* One additional course similar to the type described in A.(6) above.

2. INSTRUCTIONAL DESIGN

(1) *Instructional methods and media.* Study of theory, design, utilization and methods of educational media to include media selection and production of instructional media.

(2) *Instructional design techniques.* Study of the systematic approach to the design and development of instructional materials. Application of specific conceptual and procedural models for design and development of instructional materials.

3. INSTRUCTIONAL MATERIALS DEVELOPMENT

(1) *Instructional methods and media.* See B.2.(1) above.

(2) *Instructional development.* Study of the principles and methods of the development, field testing, and revision of instructional materials. Includes practical work in developing learning activities, selecting media, and developing, evaluating, and revising materials for self-paced or classroom-oriented lessons.

4. TRAINING AIDS AND DEVICES

For this functional area, two (2) courses in:

(1) *Audiovisual materials and methods.* Study of the principles and techniques of integrating audiovisual materials and methods in the instructional system. Topics may include simulation.

5. INSTRUCTIONAL SERVICES

For this functional area, any two (2) courses from among those identified in A. (1) through (6) above.

6. EVALUATION INSTRUCTIONAL PROGRAM

(1) *Assessment or appraisal techniques, or program evaluation methods.* Theories and practices of program evaluation including the use of research methodology in evaluation and the construction of evaluation instruments.

(2) *Statistics.* Advanced course covering inferential statistics.

7. STAFF AND FACULTY DEVELOPMENT

For this functional area, two (2) courses from among those listed below which have not been credited under A.

(1) *Learning theory.* Similar to A. (1).

(2) *Curriculum development.* Similar to A.(2).

(3) *Occupational analysis.* Similar to B. 1. (1.)

(4) *Teaching or instructional methods.* Similar to A.(3).

8. TESTS AND MEASUREMENT

(1) *Test construction or development.* Study of contemporary test theory including diagnostic evaluation, criterion-referenced testing, development of performance standards, and integration of student evaluation systems.

(2) *Statistics.* See B.6.(2) above.

ALTERNATE REQUIREMENT

Candidates may substitute for the basic requirement an alternate requirement of at least

5 years of experience that would be appropriately classifiable in this series. (See the description of work in this standard and in the position classification standard for this series.) To meet the alternate requirement, the 5 or more years of experience must have demonstrated (1) thorough knowledge of the principles underlying the professional work of this series, and (2) understanding, both theoretical and practical, of the methods and techniques applied in performing professional work in this series. This experience must have been of such character and diversity to be a stisfactory substitute for the required education. The experience must have demonstrated that the applicant has acquired a thorough knowledge of the fundamental principles and theories of the work and that the candidate possesses an understanding of the field comparable to that normally acquired through successful completion of a full course of study in an accredited college or university. This alternate requirement is designed to provide appropriate consideration of the qualifications of candidates who have gained professional knowledge and skill through nontraditional or unusual experience paths.

If a candidate meets the alternate requirement, one year of the highest level of work performed may be used to determine the grade level at which the candidate qualifies.

ADDITIONAL EXPERIENCE AND EDUCATION REQUIREMENTS

For GS-5

The basic or alternate requirements above, which apply to all grades, are fully qualifying for GS-5.

For GS-7

Applicants for GS-7 positions must meet the requirements of A or B below:

A. One year of satisfactory performance in a GS-5 or equivalent position that is directly related to the position being filled.

OR

B. Successful completion of one year of full-time graduate education in a field directly related to the position being filled such as educational or industrial psychology, educational technology, curriculum development, or other similarly related areas.

For GS-9

Applicants for GS-9 positions must meet the requirements of A or B below:

A. One year of satisfactory performance in a GS-7 or equivalent position that is directly related to the position being filled.

OR

B. Successful completion of two years of full-time graduate education or all requirements for a master's or equivalent, degree, in a field directly related to the position being filled such as those listed above.

For GS-11

Applicants for GS-11 positions must meet the requirements of A or B below:

A. One year of satisfactory performance in a GS-9 or equivalent position that is directly related to the position being filled.

OR

B. Successful completion of all requirements for a Ph.D. or Ed.D. in a field directly related to the position being filled such as those listed above.

For GS-12 and above

Applicants for positions at the GS-12 and above levels must have one year of satisfactory performance at the next lower grade or equivalent position that is directly related to the position being filled.

SELECTIVE AND QUALITY RANKING FACTORS

The Instructional Systems Series covers a broad and varied spectrum of positions some of which may require specialized knowledges and skills not identified in this standard. In

appropriate cases, selective factors may be constructed by agencies to indicate those knowledges and skills considered *essential* to produce a list of eligibles qualified to perform the duties of the position satisfactorily. The selective factor requested for a position should represent the *basic* qualifications for the job and must be demonstrably job-related and reflected in the duties and responsibilities assigned to the position. Selective factors must represent knowledges or skills required of a candidate at the time of entry into a position of those which could not be learned without a significant amount of training. Examples of selective factors that may be required in instructional systems positions, at any grade level, include a requirement for fluency in a language, other than English.

For some positions in this series, especially at the GS-9 and above levels, agencies may request the use of specific quality ranking factors to identify the *better qualified* candidates from a group or persons basically qualified for a position. Properly identified and justifiable quality ranking factors should present a qualification pattern which would most likely assure superior performance in a position. Quality ranking factors also must be directly related to the duties and responsibilities of the position and shown to be predictive of superior performance. Examples of quality ranking factors may include knowledge of a vocational occupation area, or knowledge and skill in developing specific types of training aids and devices.

Additional guidance concerning the evaluation and documentation of selective and quality ranking factors is provided in FPM Chapter 332, Subchapter 4 and Appendix B.

PHYSICAL REQUIREMENTS—ALL LEVELS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of prosthesis or mechanical aid. Reasonable accommodation also may be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters or adjusted work schedules.

Also, all positions involving operation of a Federal motor vehicle carry the additional medical requirements specified in the Federal Personnel Manual (FPM) Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operations and Incidential Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

SUPERVISORY POSITIONS

Use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X-118 in conjunction with this standard.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For those positions in which operating a motor vehicle is essential to the efficient performance of the work, applicants are required to:

—possess, or obtain within 30 days of employment, a valid State driver's license, and

—qualify, after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency. (See FPM Chapter 930).

GENERAL INSPECTION, INVESTIGATION, AND COMPLIANCE SERIES, GS–5/15

DESCRIPTION OF WORK

Persons engaged in assessing and obtaining the compliance of persons or organizations with Federal laws, rules, regulations, etc., are involved in such activities as the following:

—onsite inspections or investigations including interviews and review of pertinent records;
—evaluating inspections, investigations, and related reports to determine the appropriate corrective or legal action;
—advising and negotiating with persons or organizations the activities of which are subject to regulation:
—planning and coordinating compliance program efforts;
—promoting the compliance program to affected persons, groups, or to the general public.

The work requires a detailed knowledge of program legislation and regulations, familiarity with regulated products or activities, and a knowledge of inspectional or investigative techniques. With these knowledges, there is also the requirement for analytical ability in interpreting and applying pertinent legal and regulatory provisions to the findings of inspections and investigations and a requirement for ability to communicate effectively both orally and in writing.

Since this series is a general series, it naturally overlaps the work of other, more specific, occupational series. When there is an appropriate specific occupational series covering the work of the position to be filled, the qualification standard for that specific series should be used. This standard is to be used for those positions involving compliance work that is not elsewhere classifiable.

GENERAL EXPERIENCE

Candidates must have general experience or education or a time equivalent combination of both as described under A, B, or C below:

A. Three years of experience in work which provides evidence that the candidate has:

1. Ability to understand legal provisions, regulations, and administrative procedures and to apply them to specific situations;
2. Ability to analyze written and numerical data, draw conclusions and make decisions; and
3. Ability to communicate with others effectively, both orally and in writing;

B. Undergraduate study successfully completed in an accredited college or university. This may be substituted at the rate of 1 year of education for 9 months of general experience up to a maximum of 3 years of general experience. Thus, 4 years of such study is fully qualifying for GS–5; or

C. Any time equivalent combination of work experience and education of the kinds mentioned in A and B above.

SPECIALIZED EXPERIENCE

1. Amount of specialized experience required

Grade:	Years
GS–5	0
GS–7	1
GS–9	2
GS–11/15	3

2. Acceptable types of specialized experience

(a) Experience as a compliance inspector, investigator, analyst, or planner which has included responsibilities of the type described under *Description of Work*;

(b) Experience in closely related occupations involving specialized work directly involved in assessing or assuring regulatory compliance such as financial auditing, investigative journalism, and legal work, *provided* the experience clearly demonstrated the application of:

(1) knowledge of the laws, regulations, and administrative procedures involved in assessing and assuring compliance, and
(2) skill in the use of techniques and methods for the identification and correction of regulatory violations.

(c) Experience in a professional, administrative, or technical occupation in another, but related, facet of the Government program in which the compliance position to be filled is located which would have provided detailed knowlege of the specific laws, rules, regulations, programs, etc., required by the position to be filled. For example, experience as a Veterans Administration (VA) contact representative advising veterans on VA education benefits provisions would be creditable as specialized experience for an Educational Benefits Specialist position intended to survey colleges and training schools attended by beneficiaries to verify veterans' adherence to school and course enrollment criteria; or

(d) Experience in performing progressively responsible line work in an activity that is subject to the regulatory program in which the position to be filled is located.

SUBSTITUTING EDUCATION FOR SPECIALIZED EXPERIENCE

Graduate education that has equipped the candidate with the knowledges and abilities to perform fully the work of the position being filled may be substituted for specialized experience as described below.

A year of full-time graduate education is to be applied in terms of the number of credit hours which the school attended determines to represent a full year of study in that graduate program. Part-time graduate education is also to be evaluated in terms of the school's definition of a full year of study in the appropriate graduate program.

For 1 year of specialized experience

One full academic year of graduate education in fields directly related to the position to be filled. (This amount and kind of education meets all the requirements for grade GS–7).

For 2 years of specialized experience

Grade GS–9 positions are typically independent working positions rather than trainee positions. Therefore, it is important that candidates be prepared to work with the kind of independence and responsibility expected of employees at that grade. For many such positions graduate education alone will not provide such preparation. However, graduate education may be accepted as meeting the specialized experience requirements for positions at the GS–9 level when the following conditions are met:

a. The position to be filled involves specialized analysis or planning work which requires a broad and intensive knowledge of compliance programs and techniques; *and*
b. The graduate level course work is directly related to the compliance program (i.e., related to either the regulated activity or the work of the compliance organization).

In situations which meet these conditions, graduate study is qualifying on the following basis:

Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education, which is in a field directly related to the regulated activity or to the work of the regulatory organization (e.g., agricultural economics in assessing futures dealers' compliance with the Commodities Exchange Act and Commodity Futures Trading Commission regulations, or business administration with a concentration in international business in planning an investigation or evaluating the investigative findings in connection with the anti-boycott provisions of the Export Administration Act).

Completion of a total of at least six years of prelegal and legal education that meets all the requirements for an LL.B or J.D. degree will provide eligibility in full for grade GS–9.

Alternate requirements

Superior academic achievement at the baccalaureate level is qualifying at grade GS–7. See the Superior Academic Achievement Standard in Section III. Part II of this handbook (X–118).

GENERAL INSPECTION, INVESTIGATION, AND COMPLIANCE SERIES, GS–5/15

GUIDE FOR EVALUATION OF CANDIDATES

Although all positions covered by this standard are concerned with planning for, assessing, or obtaining individuals' or organizations' compliance with laws, regulations, or other mandatory guidelines by such means as reports analysis, inspection, investigation, negotiation, or advice; they vary widely in program and organizational settings and in the activities upon which they focus their attention. Because of the diversity of positions and the diversity of acceptable qualifications, this standard should be interpreted in terms of the knowledges and abilities required for the specific position to be filled. Specific knowledges, skills, and abilities may be used as *quality ranking factors* under justification that shows: (a) how the quality ranking factor is directly related to the duties and responsibilities of the position; and (b) why possession of the desired knowledge, skill, or ability would predict performance superior to that of otherwise qualified candidates not having the specified knowledge, skill, or ability.

For other specialized positions, only candidates who possess specific job-related knowledges, skills, and abilities may be qualified. If this is the case, then these necessary knowledges, skills, or abilities may be used as "in-or-out" *selective placement factors*. Justification for selective placement factors must show: (a) How the selective factor is directly related to the duties and responsibilities of the position; and (b) why possession of the knowledges, skills, or abilities identified as selective factors are necessary for successful performance in the position.

For further information on the use of quality ranking and selective factors, see Federal Personnel Manual (FPM) Chapter 332, subchapter 4–4, Selective Certification, and appendix B of that chapter.

SUPERVISORY POSITIONS

For supervisory positions, use the qualification standard for "Supervisory Positions in General Schedule Occupations," in Part III of this handbook in conjunction with this standard.

QUALITY OF EXPERIENCE

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's record of experience and education must show that he or she has the knowledges, skills, and abilities needed to perform the duties of the position to be filled. As far as possible, the kind and quality of experience and education should be considered in judging a candidate's facility in oral and written expression; willingness and ability to effectively engage in contacts with hostile persons; and ability to work on involved matters independently under conditions of high accountability. A background investigation may also be employed in assessing a candidate's suitability.

A candidate's experience should reflect the following characteristics:

For a trainee position

The ability to read, understand, interpret, and explain technical material such as written laws, regulations, and court decisions. Skill in factfinding including determining potential sources of usable information and obtaining the information through systematic review of reference materials and from persons through interviewing and questioning. Skill in writing factual reports (including analyses and conclusions) that are clear, concise, and logical. Skill in expressing oneself clearly, concisely, and logically in one-to-one interviews, group meetings, and oral presentations before groups.

For a full performance operating position

Skill, judgment, and technical competence in assessing and obtaining the compliance of persons or organizations with particular laws, orders, regulations, etc. Experience must have demonstrated an applicant's ability to interpret, apply, and explain the laws, regulations, etc., of the program in which the position to be filled

is located or those of a similar program. It should also have demonstrated ability to plan and conduct an inspection or investigation, to deal effectively with persons or organizations having conflicting interests, and to promote the requirements and objectives of a program to affected groups or to the public at large.

For a planning or coordinating position

Ability to assess the effectiveness of the compliance program, to determine areas of needed emphasis, and to identify alternative methods of performing the compliance function and their relative costs and benefits. Ability to make decisions on the utility of starting, altering, or continuing an investigation. Experience must demonstrate an applicant's ability to organize, direct, and coordinate compliance program efforts. It would include prior work in planning and conducting inspections or investigations, evaluating inspection or investigation reports, recommending or directing action based on the outcome of an inspection or investigation, or dealing with the subjects of inspections or investigations to win cooperation or achieve a satisfactory settlement.

For each grade, creditable experience must have equipped applicants with the knowledges and skills to perform fully the duties of the position being sought.

Applicants must demonstrate progressively responsible experience of a scope, quality, and degree such as to have equipped them with the capability to perform duties at the grade level of the position for which application is made. Typically, this is demonstrated by accomplishment of assignments of the difficulty and responsibility described in the position classification standard used to evaluate positions at the next lower grade in the normal line of promotion to the position being filled. (See 5 C.F.R. 300, Subpart F.)

BASIS OF RATING

No written test is required. Applications for all positions will be rated on a scale of 100. The basis of rating will be an evaluation of experience, education, and training. The candidate must present evidence of ability to perform the duties typical of the grade level for which he or she is being considered. The information for evaluating experience and training will be taken from the application form and any additional information obtained through confidential inquiries to supervisors, teachers, and other references.

SPECIAL PROVISION FOR INSERVICE PLACEMENT

Positions covered by this standard may be filled at the GS–5 and GS–7 levels without regard to experience or educational requirements for those levels stated elsewhere in this standard by inservice lateral reassignment of employees from positions in the Compliance Inspection and Support Series, GS–1802, or any other one-grade interval occupational series covering compliance related work.

Before they can be considered for advancement, employees reassigned under this provision must have served long enough at the grade level at which reassigned to have acquired the experience and training necessary for successful performance of higher graded work.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may in-

clude, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in FPM Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

If it is established that the work of the position to be filled has more rigorous physical requirements than those stated above, the agency should forward the proposed physical requirements and an accompanying task analysis supporting them to the Standards Development Center, Staffing Services Group, Office of Personnel Management.

MOTOR VEHICLE OPERATION

For those positions in which driving a motor vehicle is essential to the efficient performance of the work, applicants are required to:

—possess, or obtain within 30 days of employment, a valid State drivers license, and

—qualify, after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency. (See FPM Chapter 930.)

DESCRIPTION OF WORK

Persons engaged in work covered by this occupational series primarily perform either:

—*Inspections* to assess compliance with relatively straightforward regulatory provisions that involve using visual or other specific inspection techniques, obtaining specified samples, performing well established field tests, referring to standard guidelines such as inspection checklists and illustrations of acceptable and unacceptable conditions or configurations, and making decisions based on considerations such as the presence or absence of a required or prohibited item, practice, or condition (e.g., the presence or absence of required documents or the obvious physical condition of an implement, container, conveyance, or premises);

OR

—*Technical work* in support of compliance inspectors, investigators, and program supervisors and managers involving tasks such as obtaining factual information needed in inspections or investigations; providing factual information on established regulatory requirements to persons or organizations subject to regulation; and maintaining program-related administrative reports on topics such as manpower, caseload, and case status.

EXPERIENCE, EDUCATION, AND TRAINING REQUIREMENTS

Experience requirements

Except for the substitutions provided for below, candidates must have had qualifying experience in the amounts and of the type shown in the following table:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-4	2	0	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5

General experience

This is any type of work which shows evidence of the applicant's aptitude for acquiring the particular knowledges and skills needed to perform compliance inspection or technical support work. For example:

—*progressively responsible clerical experience* such as that gained through applying a body of rules, regulations, decisions, or statutes as in payroll work, voucher examining, or bookkeeping; extracting substantive data or information from various sources such as reports to maintain records or to prepare other reports; composing correspondence, narrative reports, or summaries which required selecting or paraphrasing standard letters, paragraphs or forms; advising people in person on benefits, privileges or obligations under insurance, retirement, educational, or other similar plans or systems; or

—*trades, laboring, or military experience* that involved learning and applying a variety of rules and regulations pertaining to such things as health, safety, security, sound business practice, conservation of resources, etc.

Specialized experience

This is progressively responsible experience which has provided knowledges and abilities relevant to the work for which application is made, for example:

—inspecting items or premises to insure they meet prescribed standards of health, safety, security, etc., *provided* the things inspected and the reasons for the inspections are closely related to those of the position to be filled;

—providing technical assistance to professional or technical staff such as engineers, geologists, surveyors, chemists, biologists, etc., by doing such work as obtaining needed specimens or samples, performing standard tests and making calculations where the subject of the work was the same

as or closely related to that with which the position to be filled is concerned;

—performing substantive clerical or technical work for the program in which the position to be filled is located (e.g., maintaining reports, statistics, or other program-related information; examining documents and records to ascertain sufficiency, accuracy, and implications of information, providing oral and written information on program requirements; recommending or taking appropriate servicing actions);

—performing line work in a public or private activity subject to regulation by the program in which the position to be filled is located.

SUPERVISORY POSITIONS

For supervisory positions, use the qualification standard for "Supervisory Positions in General Schedule Occupations," in Part III of this handbook, in conjunction with this standard.

QUALITY AND LEVEL OF EXPERIENCE

For each grade, creditable experience must have equipped applicants with the knowledges and skills to perform fully the duties of the position being sought.

Applicants must demonstrate progressively responsible experience of a scope, quality, and degree such as to have equipped them with the capability to perform duties at the grade level of the position for which application is made. Typically, this is demonstrated by accomplishment of assignments of the difficulty and responsibility described in the position classification standard used to evaluate positions at the next lower grade in the normal line of promotion to the position being filled. (See 5 C.F.R. 300, Subpart F.)

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

For grade GS–4

Successful completion of two academic years of post-high school education in an accredited institution may be substituted in full for the GS–4 level requirements where the course work was directly applicable to the work of the position to be filled.

For grade GS–5

Successful completion of a full 4-year course in an accredited college or university may be substituted in full for the GS–5 experience requirements provided the course work was directly applicable to the work of the position to be filled.

Appropriate education and training other than that stated above, such as military training programs or manpower development programs, will be given credit on a month-for-month basis.

BASIS OF RATING

No written test is required. Applications for all positions will be rated on a scale of 100. The basis of rating will be an evaluation of experience, education, and training. The candidate must present evidence of ability to perform the duties typical of the grade level for which he or she is being considered. The information for evaluating experience and training will be taken from the application form and any additional information obtained through confidential inquiries to supervisors, teachers, and other references.

The candidate may also be required to appear for a preemployment interview to demonstrate possession of needed knowledges, skills and abilities.

GUIDE FOR EVALUATION OF CANDIDATES

In evaluating the experience and training background, consideration should be given to the degree and extent to which the evidence shows that the candidate has acquired the knowledges, skills and abilities to perform the work of the position to be filled. Experience and training obtained through upward mobility programs and assignments should be considered in the same manner as other training and experience.

COMPLIANCE INSPECTION AND SUPPORT SERIES, GS–4/7

In ranking individuals, information about the demands of the job in terms of specific subject matter fields should be considered. For example, an applicant who shows successful experience in inspecting wildlife and wildlife products for compliance with import and export regulations might not possess the same degree or quality or the required depth and breadth of knowledges of regulations governing the export of manufactured goods or vice versa. Therefore, when the position requires knowledges and skills associated with a particular regulated activity or regulatory program, successful experience gained in that area may be ranked as highest quality experience. However, experience that has required the use of methods and techniques similar to those required by the position to be filled, even though the subject matter dealt with differs, may also be considered. Academic study involving course work directly related to the position to be filled may be ranked as highest quality education.

SELECTIVE PLACEMENT

Because compliance inspection and support positions are found throughout the Federal Government's regulatory programs, the subject matter of which vary, the particular demands of positions vary also. Therefore, consideration and selection of candidates for some positions may be limited to those whose records show experience and training in specific subject matter areas related to specific regulatory programs.

PHYSICAL REQUIREMENTS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual (FPM) Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

If it is established that the work of the position to be filled has more rigorous physical requirements than those stated above, the agency should forward the proposed physical requirements and an accompanying task analysis supporting them to the Standards Development Center, Staffing Services Group, Office of Personnel Management.

MOTOR VEHICLE OPERATION

For those positions in which driving a motor vehicle is essential to the efficient performance of the work, applicants are required to:

—possess, or obtain within 30 days of employment, a valid State drivers license, and

—qualify, after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency. (See FPM Chapter 930.)

GENERAL INVESTIGATING SERIES
CRIMINAL INVESTIGATING SERIES

Investigator
Supervisory Investigator
Criminal Investigator
Supervisory Criminal Investigator
GS–1810/1811–5/15

COVERAGE

These standards are intended to be used primarily in filling investigator and criminal investigator positions which involve the performance of factfinding and reporting duties and related responsibilities described below, and other positions in these series for which actual investigative experience is essential. All parts of these standards apply to positions in both the General Investigating Series, GS–1810, and the Criminal Investigating Series, GS–1811; where variations exist involving differences in investigating duties, specialized experience, physical standards, and minimum age requirements, these are so indicated.

DESCRIPTION OF WORK

Investigators, GS–1810

Investigators plan and conduct investigations relating to the administration of, or compliance with, Federal laws and regulations. The duties performed typically include those such as the following: Collecting facts and obtaining information by observing conditions, examining records, and interviewing individuals; writing and securing affidavits; administering oaths; preparing investigative reports to be used as a basis for court or administrative action; testifying before administrative bodies, courts, or grand juries, or serving as a witness for the Government. The work occasionally may involve criminal investigations.

Performance of these duties may require work at irregular hours and considerable travel. Investigators may also be required to operate motor vehicles.

Criminal Investigators, GS–1811

Criminal investigators plan and conduct investigations relating to alleged or suspected violations of Federal laws. The duties typically performed include those such as the following: obtaining physical and documentary evidence; interviewing witnesses; applying for and serving warrants for arrests, searches, and seizures; seizing contraband, equipment and vehicles; examining files and records; maintaining surveillance; performing undercover assignments; preparing investigative reports; testifying in hearings and trials; and assisting U.S. Attorneys in the prosecution of court cases. Most criminal investigators are required to carry firearms and to be proficient in their use. The work may occasionally involve noncriminal investigations.

Performance of these duties frequently requires irregular unscheduled hours, personal risks, exposure to all kinds of weather, considerable travel, and arduous exertion, under adverse environmental conditions. Criminal investigators may also be required to operate motor vehicles.

TYPES OF POSITIONS

The kind of investigative work performed varies in respect to the investigative jurisdiction and functions of the employing agencies. The grade levels of the positions vary with the scope, complexity, and importance of investigations and the degree of individual responsibility required, which become progressively greater at higher levels. At the higher grade levels, investigators may also serve as team leaders, group supervisors, case reviewers, unit coordinators, or in similar capacities, with responsibility for supervising the work of other investigators; or they may be responsible for the management or direction of an investigative program or program segment.

The duties of some positions require experience or equivalent educational backgrounds (*a*) which have been obtained in or are closely related to particular industries, business operations, commercial enterprises, professions, or other occupational areas; or (*b*) which have been obtained in both the investigative and the criminal investigative areas.

EXPERIENCE REQUIREMENTS

Except for the substitutions provided for below, applicants must have had experience of the length shown in the table and of the nature described in the paragraphs following:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11 and above	3	3	6

General experience

This must have been progressively responsible experience which has required (1) ability to work or deal effectively with individuals or groups of persons, (2) skill in collecting and assembling pertinent facts; (3) ability to prepare clear and concise reports, and (4) ability and willingness to accept responsibility. Acceptable general experience may have been gained in types of work such as the following:

(1) Adjustment or investigation of claims arising under law, contract, or governmental order such as workmen's compensation claims, insurance claims, claims against common carriers or similar organizations;

(2) Analysis of reports or data or the preparation of surveys, studies, or reports, requiring the development, organization, evaluation and interpretation of substantive program, technical, or similar information;

(3) Examining, administrative, or professional experience with Government regulatory bodies requiring review of regulatory material or reports on compliance with regulations:

(4) Experience requiring ability to determine applicability of laws, rules, and regulations, and to explain legal requirements;

(5) Responsible auditing and accounting work which included analyzing books and records, and preparation of statements and reports in accordance with recognized accounting standards, procedures, and principles;

(6) Adjudication or examination of claims which required the collection and analysis of pertinent data and the preparation of written reports and recommendations on such claims;

(7) Performance of preliminary record inspection, verification and procurement of documents required to establish prima facie cases from courts and law enforcement agencies and securing of related information from records of such courts and agencies;

(8) Experience as a teacher of accounting or law in a resident college or university; (One academic year of teaching will be accepted for 9 months of experience.)

(9) Experience described below under "Specialized Experience" for either Investigator or Criminal Investigator;

(10) Any time-equivalent combination of any of the above or comparable types of experience.

Specialized experience

This must have been progressively responsible investigative experience which demonstrated (1) initiative, ingenuity, resourcefulness, and judgment required to collect, assemble, and develop facts and other pertinent data; (2) ability to think logically and objectively, to analyze and evaluate facts, evidence, and related information, and arrive at sound conclusions; (3) skill in written and oral reports and presentation of investigative findings in a clear and concise manner; and (4) tact, discretion, and capacity for obtaining the cooperation and confidence of others.

For Investigator positions, this may be either investigative or criminal investigative experi-

ence, or comparable experience. For criminal investigator positions, this must have been criminal investigative experience, or comparable experience.

Investigator Positions, GS–1810

Acceptable investigative experience may have been obtained in types of work such as the following:

(1) Investigations of difficult casualty or insurance claims;
(2) Investigations conducted for a private detective agency which involved responsible factfinding and reporting on substantial issues;
(3) Newspaper reporting where the major responsibility involved personal investigations of facts pertaining to violations of law;
(4) Investigations in connection with the prosecution or defense of civil or criminal cases;
(5) Investigations for a Federal, State, county, or municipal agency;
(6) Investigations of important cases for practicing attorneys; or practice of law involving a substantial amount of investigative work or analysis of issues of fact and law;
(7) Legal experience involving such activities as personal participation in court cases and interviewing of suspects or witnesses;
(8) Investigations concerning compliance with, or violations of, governmental law, rules, and regulations;
(9) Investigations of individuals for character, conduct, suitability, and fitness for employment;
(10) Any of the types of specialized experience described for Criminal Investigators, below;
(11) Any time-equivalent combination of the above types or similar types of experience.

Criminal Investigator Positions, GS–1811

Acceptable criminal investigative experience may have been gained in types of work such as the following:

(1) Investigative experience as a member of a military intelligence or criminal investigative component in any of the branches of the Armed Forces or in any of the various intelligence or investigative branches of the public service, in which the principal duties consisted of the supervision of or the independent conduct of investigations of security, intelligence, or criminal cases, the preparation of comprehensive documented reports, and responsibility for testifying in court;
(2) Investigation of complex casualty or insurance claims which included a substantial number of cases involving suspected crimes or alleged fraud;
(3) Investigation of criminal cases for practicing attorneys requiring the use of recognized investigative methods and techniques;
(4) Experience in the general practice of criminal law which required appearing in court and interviewing suspects and witnesses, or which required a substantial amount of complex criminal investigative work;
(5) Experience as a uniformed law officer where the principal duties (at least 50% of the time) were criminal investigations requiring the use of a variety of investigative methods and techniques such as surveillance, assuming an undercover role, etc.; (Investigative experience of this nature which has been acquired on less than a full-time basis will be prorated for credit.)
(6) Any time-equivalent combination of the above types or similar types of experience.

Nonqualifying experience

There are some types of experience which are related to investigative work but which are not acceptable as either general or specialized experience for either the Investigator positions or the Criminal Investigator positions. Applicants who offer only these kinds of experience will be disqualified. Experience is not acceptable if (*a*) it has not afforded training in, or required the application of the knowledges, abilities and skills described above, or (*b*) it has been acquired in essentially clerical tasks or assignments. Examples of the kinds of experience which are not qualifying are:

(1) Experience in performing the normal duties of policeman, guard, watchman, or private detective assigned principally to the protection of life or property, or similar experience in other kinds of positions.

(2) Experience as a probation or parole officer which did not require pre-sentence investigations, investigations of parolees, objective development of facts, preparation of reports, or appearance in court to defend investigative findings;

(3) The investigation of minor insurance damage claims or of the financial standing of individuals or firms for credit associations or for collection agencies;

(4) Clerical work performed incidental to the adjudication of claims;

(5) Experience generally acquired in such positions as payroll clerk or reviewer, or voucher clerk or reviewer; cash accounting clerk; cashier; teller; time and leave clerk; disbursing clerk; fiscal clerk; administrative clerk; and similar positions.

(6) Experience as an inspector whose principal duties were to examine materials, plant facilities, or equipment to determine whether they conformed to prescribed specifications or standards.

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

QUALITY OF EXPERIENCE

The applicant's record of experience and training must show that he has the personal qualities and the ability commensurate with the duties and responsibilities of the particular grade of position for which he is being considered. Length of experience is of less importance than demonstrated success in positions of a responsible nature, and of less importance than the breadth and scope of the pertinent knowledges, skills, and abilities possessed by the applicant and applied by him in the performance of the duties of such positions. Although no additional amount of experience beyond that required for grade GS–11 is required for grades GS–12 through GS–15, applicants for these higher grade levels must have had a progressively higher quality of experience. Total experience must show substantial and consistent progress in acquiring general knowledges and skills pertinent to the position applied for and in the degree of responsibility assigned and successfully discharged. Possession of the required years of experience and training for any given grade will not by itself, therefore, necessarily be accepted as meeting the experience and training requirements for the grade.

For all grades through GS–11, at least 6 months of the required specialized experience must have been of a level of difficulty and responsibility comparable to that of the next lower grade, or at least 1 year of the specialized experience must have been at a level of difficulty and responsibility comparable to that of the second lower grade in the Federal service. For the GS–12 level and above, at least 1 year of the specialized experience must have been at a level of difficulty and responsibility comparable to

that of the next lower grade in the Federal service.

EDUCATIONAL AND OTHER SUBSTITUTIONS

1. *For a maximum of 3 years of general experience* (for both Investigator GS–1810 positions and Criminal Investigator GS–1811 positions):

a. Study successfully completed in an accredited college or university may be substituted at the rate of 1 year of study (30 semester hours or equivalent) for 9 months of experience. (Four years of study in a college or university or completion of all requirements for a bachelor's degree qualifies for positions at grade GS–5.)

b. Possession of a certificate as a Certified Public Accountant in a State, territory, or the District of Columbia.

2. Full-time* graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For 1 year of specialized experience.—For Investigator GS–1810 and Criminal Investigator GS–1811 positions:* One full academic year of graduate education. (This amount and kind of education meets all the requirements for both types of positions at grade GS–7.)

b. *For 2 years of specialized experience.—For Investigator GS–1810 positions:* Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education in public administration, industrial relations, political science, government, business administration, law enforcement, police administration, criminology, or directly related fields. (This amount and kind of education meets all the requirements for these positions at grade GS–9.)

For Criminal Investigator GS–1811 positions: Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education in law enforcement, police administration, criminology, or directly related fields. (This amount and kind of education meets all the requirements for these positions at grade GS–9.)

3. Completion of a total of at least 6 years of legal and pre-legal education which meets all the requirements for an LL.B. or J.D. degree will provide eligibility in full at grade GS–9 for both Investigator GS–1810 positions and Criminal Investigator GS–1811 positions.

4. *Superior academic achievement:* The Superior Academic Achievement standard in section III of part II, Instructions to Users, of this handbook is applicable at grade GS–7 for both Investigator GS–1810 positions and Criminal Investigator GS–1811 positions.

SUPERVISORY POSITIONS

For supervisory positions see the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook.

PERSONAL QUALITIES

In addition to meeting all other requirements, applicants for these positions must possess certain personal qualities essential for investigative work. Among these qualities are ability in oral expression; poise and self-confidence; good personal appearance; tact; initiative and drive; capacity for effective public relations; and practical intelligence. Applicants who do not demonstrate the personal qualities necessary for successful performance of the duties of an investigator or a criminal investigator will not be appointed to these positions.

*Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.

WRITTEN TEST

Competitors for positions at the GS–5 and GS–7 levels must pass an appropriate written test. The test should be waived for in-service placement actions but not for appointments outside the register.

No written test is required for positions at GS–9 and above.

BASIS OF RATING

Competitors for GS–5 and GS–7 will be rated on the basis of the written test and an evaluation of their experience and education.

Competitors for GS–9 and above will be rated on the basis of an evaluation of their experience, education, and investigative skills.

INTERVIEW

Competitors who pass the written test, as required, and who meet the experience and training requirements may be requested to appear for an interview at the time of consideration for appointment. The purpose of the interview is to observe and evaluate at firsthand, certain personal characteristics of the applicant to determine whether he possesses qualities essential to the successful performance of the duties of the position.

PHYSICAL REQUIREMENTS

Investigator (GS–1810) Positions

Applicants must be physically able to perform efficiently the duties of the position for which application is made. Good distant vision in one eye and ability to read without strain printed material the size of typewritten characters are required, glasses permitted. Ability to hear the conversational voice, with or without a hearing aid, is required. In most instances, an amputation of arm, hand, leg, or foot will not disqualify an applicant for appointment, although it may be necessary that this condition be compensated by use of satisfactory prosthesis. Applicants must possess emotional and mental stability. Any physical condition which would cause the applicant to be a hazard to himself or to others will disqualify him for appointment.

Criminal Investigator (GS–1811) Positions

The duties of the positions require moderate to arduous physical exertion involving walking and standing, use of firearms, and exposure to inclement weather. Manual dexterity with comparatively free motion of finger, wrist, elbow, shoulder, hip, and knee joints is required. Arms, hands, legs, and feet must be sufficiently intact and functioning in order that applicants may perform the duties satisfactorily. Applicants must possess sufficiently good vision, with or without glasses, each eye, in order that they may perform the duties satisfactorily. Near vision, glasses permitted, must be acute for the reading of printed material the size of typewritten characters. The ability of applicants to hear the conversational voice and whispered speech without the use of a hearing aid is required. Since the duties of the position are exacting and responsible, and involve activities under trying conditions, applicants must possess emotional and mental stability. Any physical condition which would cause the applicant to be a hazard to himself or to others will disqualify for appointment.

MOTOR VEHICLE LICENSE

For some positions, applicants (*a*) must possess a valid automobile license at the time of appointment, and (*b*) must also qualify after appointment for authorization to operate motor vehicles in accordance with applicable Civil Service regulations and with related requirements of the employing agency.

AGE

Investigator (GS–1810) Positions

Minimum of 18; see standard paragraph.

Criminal Investigator (GS–1811) Positions

Minimum of 21; not waived for any applicants including those persons entitled to veterans preference.

EVALUATION OF EXPERIENCE AND EDUCATION FOR COMPETITIVE AND IN-SERVICE PLACEMENT PURPOSES

(1) Evaluation of investigative abilities and skills required in the positions (as distinguished from length of experience) is an important part of the rating procedure. Information on these and on essential personal qualities required for the work should be obtained, for example, by the use of vouchers or other similar sources of information.

(2) Education which has been acquired in fields directly or closely related to the positions to be filled should be rated at a higher level than that which has been acquired in less closely or unrelated fields. For example, for some criminal investigator positions, education which has been obtained in police administration, police science, or law enforcement should be rated at a higher level than education which has been obtained in more general fields.

(3) Quality levels for rating investigator and criminal investigator experience should be established in accordance with the following guides:

(a) experience which has concerned matters involving substantial ramifications or elements of investigative complexity should be rated at a higher quality level than experience which did not involve such ramifications or elements (ordinarily investigative complexity can be gauged by such indicators as the size, diversity, and interrelationships of operations and activities investigated; the numbers of investigative matters growing out of the original case assignment; the numbers, size, and complexity of structure and subsidiary activities of the organizations involved; the geographic dispersion of the operations investigated; the degree of involvement of other principals; the degree of controversy surrounding the case; the potential deterrent value in successfully bringing the case to a conclusion; the delicacy of the legal issues involved; the absence of precedents; etc.);

(b) experience which has required individual responsibility on the part of the investigator for complete investigations should be rated at a higher quality level than experience which has involved responsibility for a segment or phase of an investigation, or which has involved limited responsibility for a complete investigation;

(c) experience which has required the exercise of sound independent decision and judgment while working under general technical and administrative supervision and direction should be rated at a higher quality level than experience which has been acquired while working under closer supervision;

(d) experience which has required the exercise of a high degree of ingenuity, resourcefulness, and creative thinking should be rated at a higher quality level than experience which called for these qualities to a lesser degree.

Rating procedure

Evaluation of the scope and level of the applicants' knowledges, skills, and abilities is of greater importance than evaluation of length of experience in individual types of positions. Consequently, either Rating Procedure II or III (described in paragraphs 2 and 4 of appendix A to part II of this handbook) is likely to be the most useful and appropriate method. Rating Procedure I (described in paragraph 1 of appendix A) can be adapted if the number of applicants is so large that this method offers an advantage in more effectively differentiating among eligibles.

**Quality Assurance Specialist
(All Specializations) GS–5/15**

DESCRIPTION OF WORK

Quality assurance specialists perform, administer, or advise on work concerned with assuring the quality of products acquired and used by the Federal Government. The work involves: (1) the development of plans and programs for achieving and maintaining product quality throughout the item's life cycle; (2) monitoring operations to prevent the production of defects, and to verify adherence to quality plans and requirements; and (3) analysis to detect adverse quality trends and initiate corrective action. The duties require analytical abil[illegible] knowledge, and application of quality assurance principles and techniques, and knowledge of pertinent product characteristics and associated manufacturing processes and techniques.

Specializations

Quality assurance positions as a group require the application of certain fundamental knowledge and skills of the principles, methods, and processes for assuring product quality such as the knowledge and skills required to apply statistical analysis and sampling techniques to the work. Quality assurance specialists above the trainee level apply such knowledge and skills in one or more areas of specialization depending on the products involved or on the nature of the work at a particular activity. Typical areas of specialization include aerospace systems and equipment, conventional and special munition items, automotive equipment, clothing and textile items, electronics equipment, nuclear systems, chemicals and petroleum products, aircraft, mechanical equipment, and ships.

Quality assurance functional programs

Quality assurance specialists insure that those activities responsible for development, production, procurement, storage, maintenance, or issue of products carry out their responsibilities for quality so that technical requirements are met and dependable products capable of performing as intended are the end result. Additional information concerning the work of quality assurance specialists can be found in the position classification standard for this series.

Quality assurance programs may be categorized in terms of the functional activities or agency missions which they support.

—*Acquisition quality assurance:* This function insures that contractors fulfill their responsibilities for controlling product quality in accordance with contractual quality requirements, and that products offered to the Government conform to specifications.

—*Maintenance and manufacturing quality assurance:* This function is concerned with controlling the quality of products manufactured, maintained, overhauled, or modified in Government owned and operated activities.

—*Supply quality assurance:* This function is concerned with product quality relative to the operations and procedures for receipt, storage, preservation, packaging, packing, handling, and issue of material.

—*Staff quality assurance:* Staff activities are applicable to maintenance, manufacturing, supply, and acquisition quality assurance programs and may exist in all functions. Quality activities related to all phases of the product life cycle may be concentrated in a separate program at the managerial levels in some agencies.

Grade GS–5 is the normal entrance level for trainees in this occupation. However, this does not preclude establishment of an entrance level below that grade, where such a level is needed for career mobility purposes. For guidance on the staffing of these kinds of positions, refer to the material on extension of qualification standards contained in Part II of this handbook, Instructions to Users, and the Explana-

[1] Supersedes the standard for GS–1910 issued June, 1970, TS 134.

tory Memorandum issued with the classification standard for this series.

KNOWLEDGE, SKILLS, AND RELATED REQUIREMENTS

Knowledge and skills

The requirements contained in this standard constitute the core knowledge and skills required for positions in this occupation, e.g., knowledge of quality assurance methods, principles, and practices and knowledge of pertinent test, measurement, and sampling techniques. The requirements reflect a typical progression in the acquisition and development of knowledge and skills during a quality assurance specialist's career. The requirements are keyed to the progression of grade levels in the classification standard for this occupation.

At the GS–5 entrance level, knowledge and skill requirements are general in nature and focus on basic abilities, general problem solving ability, and communicative skills. For succeeding grade levels the knowledge and skills required become more specialized. Education is substitutable for practical work experience through grade GS–9 provided the education demonstrates possession of the required knowledge and skills.

Experience criteria

The experience criteria in this standard reflect minimum requirements for individuals to obtain and demonstrate the knowledge and skills required at the grade level sought. For GS–5 entrance positions, the requirement gives employing agencies minimum assurance that applicants can perform the work.

It also provides each applicant with an equal amount of time to develop and demonstrate possession of the required knowledge and skills.

For succeeding grade levels, experience criteria are based on the premise that demonstrated proficiency in the application of knowledge and skills at a given level indicates likelihood of success in similar work at the next higher level.

Selective factors

Some quality assurance positions require highly specialized knowledge and skills related to a particular product or process to the extent that these become a primary consideration in identifying qualified candidates. In such cases, the use of selective factors as screen-out elements may be appropriate, provided:

—the knowledge, skills, and abilities are *essential* for satisfactory performance of the work;
—the selective factors are job-related; and
—the knowledge, skills, and abilities could not be acquired on the job without undue interruption of the work or prolonged training.

Normally, selective factors will be applied only to positions at GS–9 and above. Trainee positions by their nature usually do not satisfy the criteria for the use of selective factors. For example, in filling full performance level positions in ammunition or nuclear work, it may be appropriate to restrict consideration to those candidates possessing knowledge and skills related to these areas. However, it would be inappropriate to use selective factors where the purpose of the positions is to receive training, leading to the acquisition of the knowledge and skills required for ammunition or nuclear work. For additional information on ranking of eligibles, refer to the section titled Evaluating Candidates.

Physical ability

The following physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

Individuals must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases a specific physical condition or impairment will not automatically disqualify an individual for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considering in determin-

ing an individual's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual, Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

Motor vehicle operation

For those positions in which driving a motor vehicle is essential to the efficient performance of work, applicants are required to:

—possess, or obtain within 30 days of employment, a valid State driver's license; and

—qualify, after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency. (See FPM Chapter 930.)

Supervisory positions

For supervisory positions use the qualification standard of "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X-118 in conjunction with this standard.

Promotions

The provisions of 5 CFR 300 Subpart F, must be complied with concerning the rate at which employees may be promoted, irrespective of their qualifications.

MINIMUM QUALIFICATION REQUIREMENTS

GS-5 level

A. Three years of progressively responsible work experience, which includes one year of work at no lower than grade GS-4 or equivalent and demonstrates:

—ability to present technical information verbally or in written form;

—ability to collect and analyze data by making observations, relating observed data to established standards, and evaluating the significance of the collected data;

—ability to draw conclusions and make recommendations by analyzing facts and conditions, and making suggestions for corrections or improvement;

—ability to apply guideline material by reading and interpreting technical material and translating the guidance into specific actions;

—skill in dealing with others in a work relationship to accomplish a given purpose;

OR

B. Completion of a four year course in an accredited college or university leading to a bachelor's degree in any field;

OR

C. A time equivalent combination of experience and education as defined in A or B above. In combining education with experience, and academic year of study is equivalent to nine months experience.

The knowledge and skills required in A above may have been gained in a variety of administative, technical or investigative lines of work, in skilled trade or craft occupations, or substantive clerical work. Experience of a routine nature (i.e., work which primarily involved typing, filing, or procedural clerical work in which the employee is not directly concerned with the subject matter involved) or work in unskilled trades or laboring occupations is not qualifying.

While not all-inclusive, the following types of work experience are illustrative of those in which the basic abilities and underlying knowledge *may* have been acquired.

—Administrative or technical work that involved preparing nonroutine correspondence, reports, instructions, or similar material which included the use of basic technical terminology, such as that con-

cerned with the compilation of data or maintenance of specialized reference materials and case files.

—Work of a statistical nature that involved such things as performing various computations of data, summarizing results, and preparing reports or charts depicting pertinent relationships.

—Trade, craft, or other work that involved interpreting technical material to determine appropriate testing requirements.

—Responsible work that involved dealing with co-workers or subordinates to elicit their cooperation to perform specific tasks, or to comply with regulations, policies, or practices.

—Work that involved explaining, interpreting, and applying rules, regulations, and operating procedures to specific situations.

GS-7 level

A. A background which includes one year of work experience no lower than GS-5 or the equivalent and demonstrates:

—basic knowledge of quality assurance procedures and methods and the sources of pertinent regulatory and guideline material related to the functional activity supported by the quality program, sufficient to perform assignments of an advanced trainee nature for which there are clear precedents;

—knowledge of pertinent product characteristics, the sources of applicable quality requirements, and the factors relative to manufacturing processes or other operations which affect product quality sufficient to perform assignments of limited scope and complexity;

—demonstrated skill in reading and interpreting technical data such as blueprints, engineering drawings, product specifications, or technical manuals, and in applying these guidelines to the work;

—skill in summarizing, analyzing, and evaluating quality data, to prepare technical reports;

—demonstrated skill in forming effective interpersonal relationships and coordinating work efforts.

OR

B. One year of full-time graduate education in an accredited college or university with major study in related fields such as production management, business management, statistics, industrial technology, engineering, the physical sciences, or a discipline directly related to the specialization involved in the career pattern of the position to be filled, e.g., metallurgy, materials, or textile technology.

OR

C. A combination of graduate study, as indicated in B above, and a background of work experience which demonstrate possession of the knowledge and skills required to perform the work of the position to be filled.

OR

D. Meeting one of the superior academic achievement provisions at the baccalaureate level provided the major course of study is in a related field (see paragraph B above) and the pertinent criteria in Section III, Part II, of this Handbook are fully met.

In addition to directly applicable experience obtained at the next lower grade in the career ladder, the knowledge and skills *may* have been acquired through progressively responsible work experience in activities that are closely related to quality assurance such as manufacturing maintenance, supply engineering, and contract or procurement. Such experience is creditable when the work required: (1) familiarity with basic quality assurance work methods and operating procedures; (2) knowledge of the products or processes involved; (3) familiarity with inspection and testing methods pertinent to the work; (4) skill to interpret and apply technical specifications (e.g., blueprints, drawings, product

standards); and (5) written and oral communication skills. Related work areas in which such knowledge and skills may have been acquired include, but are not limited to, workload planning, production control, production or industrial engineering, procurement, equipment evaluation, inspection, supply, or statistical work.

GS-9 level

A. A background which includes one year of work experience at no lower than GS-7 or equivalent and demonstrates that the candidate possesses the following:
—practical knowledge of established principles, techniques, and accepted practices of quality assurance work; including the application of statistical sampling techniques, sufficient to perform assignments of moderate scope and complexity:
—practical knowledge of pertinent characteristics of the product(s) involved, the operations or processes affecting critical characteristics, test and inspection techniques, the techniques for assessing operations or processes to detect unsatisfactory conditions and skill to apply these knowledges to a variety of assignments of moderate scope and complexity;
—demonstrated skill in interpreting, and explaining a variety of technical requirements and in making independent judgments concerning such things as the extent to which procedures conform to requirements or that procedures are effective in controlling quality;
—knowledge of the functional relationships between quality assurance and the activity supported (e.g., a maintenance or supply/storage program) the respective roles of related activities (e.g., procuring office or engineering) and demonstrated skill in effecting coordination and obtaining compliance with quality requirements;
—demonstrated skill in developing quality data sources, recognizing discrepancies, detecting trends, investigating to develop additional or corroborative information, and preparing documented technical reports of findings.

OR

B. Completion of all requirements for a master's or equivalent degree or 2 years of full-time graduate education with major study in a directly related field. Directly related means that the completed course work provided both the type and level of knowledge and skills required in the work of the position to be filled. For example, completion of the above requirements in a specialized technology field or a scientific or engineering discipline may be appropriate for positions where the particular technology or engineering expertise is the paramount requirement.

OR

C. An appropriate combination of graduate study and work experience which provided the required knowledge and skills.

AND

D. Evidence that the candidate possesses any selective factors appropriate to the position to be filled.

Alternate types of work experience which *may* have provided some or all of the knowledge and skills include progressively responsible work in private industry in such capacities as a quality control specialist or quality control engineer. Such experience should have clearly equipped candidates with the knowledge and skills required in the position to be filled. For example, quality control employees in a Government contractor's organization may be required to learn and apply principles and techniques which are directly related to those applied by their counterparts in the Government's quality assurance program.

In addition, work of a responsible nature in activities closely related to quality assurance, such as are described for GS-7 above, may have provided some or all of

the required knowledge and skills. However, the knowledge and skills required are of a higher level and more specialized than those at GS-7, where positions typically involve advanced trainee assignments. Therefore, candidates for GS-9 who offer such experience will be required to demonstrate knowledge and skills equivalent to those described in A above through significant and concrete work accomplishments, e.g., special projects, working groups, or detail assignments which involve work related to quality assurance.

GS-11 level and above

A. A background which includes one year of work experience at or equivalent to the next lower grade in the normal line of promotion, and which demonstrates possession of the following:

—thorough knowledge of the full range of quality assurance concepts, principles, and methodology related to one or more functional specializations (e.g., in support of acquisition or maintenance programs) and demonstrated skill in the application of this knowledge to independently plan and perform varied quality assurance assignments;

—broad knowledge of the product or range of products involved, the manufacturing methods and techniques, special processes, test and performance requirements and skill in developing plans and programs to insure achievement of quality requirements in one or more phases of the product's life cycle;

—Or for some positions—

—intensive and detailed knowledge of a broad product area (e.g., electronics equipment) or special process areas (e.g., materials treatment) including applicable product specifications and standards (military/Federal and industrial) and the controls necessary for insuring quality, and considerable skill in applying this knowledge to the resolution of complex quality problems in the role of a technical specialist or consultant;

—thorough knowledge of operating practices, policies, and procedures of related functional disciplines (e.g., engineering, contract administration) and skill in coordinating plans and programs with these activities.

AND

B. Demonstrated possession of any selective factors appropriate to the position to be filled.

The knowledge and skills required for positions at GS-11 and above are typically gained through progressive work assignments in the Quality Assurance Series. This does not preclude the acquisition of directly comparable knowledge and skills through work in other series. For example, in a number of instances engineers perform quality functions requiring the same skills that are applied by employees in this occupation. Similarly, other scientific disciplines, such as metallurgy, provide experience which would be applicable to commodity or technical process specialist positions in this occupation. Responsible experience in private industry quality control work (e.g., in a supervisory or managerial capacity) may also have provided the requisite knowledge and skills.

EVALUATING CANDIDATES

For both competitive and inservice placement, the evaluation of experience, training, and education should focus on those factors which reflect a candidate's ability to successfully perform the duties of the position to be filled. The required amount of experience will not in itself be accepted as proof of qualification. FPM Supplements 335-1 and 271-2 contain detailed information on candidate evaluation methods.

The evaluation process should start with an analysis of the duties and responsibilities of the position to determine the related knowledge, skills, and abilities. The analysis should

also identify any selective factors essential to satisfactory performance and the appropriate quality ranking factors, i.e., those factors which distinguish the better qualified candidates from those who meet only the minimum requirements. Quality ranking factors will vary according to the nature and grade level of the position to be filled.

Evaluating work experience

It is important that the evaluation process go beyond a cursory examination of job titles of positions held in the Federal Service or private sector. Potential sources of information about a candidate's qualifications include supplemental questionnaires, supervisory performance appraisals, reference inquiries, interviews with the candidate and with present and former supervisors.

Position classification standards provide information useful in evaluating the level of prior work experience. Relevant experience obtained in other occupations in the Federal Service, in the military, or experience obtained as an unpaid volunteer may be evaluated using the classification standard for this or other occupational series.

Evaluation of candidates for positions at GS–5 and GS–7 should be based on evidence indicating probable success in learning quickly the technical work and progressing to higher level assignments in the work of the full performance positions in the career ladder. Other things being equal, candidates who can be expected to progress to full performance proficiency most quickly will usually be distinguised by the caliber and extent of work experience which provided the knowledge and skills typically used in the work of these positions.

Evaluation of candidates for positions at GS–9 and above should be based on knowledge and skills specific to the position to be filled, and where appropriate, consideration of any selective factors. Required knowledge and skills and other characteristics vary in importance from one position to another, among quality assurance functional programs, or according to the grade level involved. In evaluating the level and quality of a candidate's background, consideration should be given to such factors as:

—breadth of knowledge of quality assurance principles and concepts, statistical sampling techniques and procedures as demonstrated by responsible experience in applying this knowledge to a range of quality problems;

—breadth of knowledge concerning pertinent product characteristics, manufacturing processes, inspection and testing techniques, and quality requirements applicable to these operations;

—relative independence of action and responsibility for making decisions when information is conflicting or for acting when precedents are indirectly applicable;

—responsibility for developing, analyzing, and evaluating complex data, drawing conclusions, and presenting recommendations which are sound, supportable, and in keeping with policy and guides;

—experience in forming effective working relationships with individuals at varied levels of responsibility, to gain their cooperation, and to motivate them to take a desired action;

—responsibility for preparation of technical and narrative reports and for presenting findings and recommendations;

—experience in working independently to plan daily activities, establish priorities, manage resources, and guide others in the work;

—responsibility for interpreting and applying regulations and requirements to situations not specifically covered by guidelines;

—progression of experience, with emphasis on the highest level of competence demonstrated.

Evaluating education and training

This assessment should focus on the job-relatedness of education, training, or self-development activities which provided familiarity with quality assurance principles, techniques, and terminology.

A bachelor's degree in any field meets the minimum requirements for GS–5 entrance level positions. However, extra credit may be accorded to those candidates who offer degrees in related fields. (See requirements for GS–7.) In addition, extra credit may be given to those candidates offering specific course work which is related to the work of this occupation, but which

does not constitute the major field of study. For example, certain technical curricula may contain as electives course work in quality control theory, statistical techniques, manufacturing processes, or materials testing and standards. To the extent that such course work is related to the position being filled, extra credit may be awarded in the ranking process.

Home study and correspondence education is acceptable in meeting the educational substitutions, when such study is accepted for credit as the equivalent of study in an accredited school.

O

SUPPLY GROUP*

Technical Supply Positions GS–5/15

These standards cover supervisory and nonsupervisory positions in the GS–2001, General Supply Series; the GS–2003, Supply Program Management Series; the GS–2010, Inventory Management Series; the GS–2030, Distribution Facilities and Storage Management Series; and the GS–2050, Supply Cataloging Series. Suggested titles for the positions are given in the position-classification standards.

DESCRIPTION OF DUTIES

Group A

The duties of positions in this group involve nonsupervisory performance of line or operating technical supply activities, such as inventory management, supply cataloging, property utilization, etc. Some positions include one supply function or several of those described in these standards; other positions include a combination of some work covered by the Supply Group, GS–2000, plus related supply activities (such as a combination of inventory management and contract administration when supply knowledges are the paramount requirement). Titles for these positions include the designation of "Specialist," "Representative," or "Cataloger;" for example, General Supply Specialist in the GS–2001 series.

Group B

The duties of positions in this group involve performance of work primarily concerned with analyzing, developing, evaluating, advising on or promoting improvements in supply programs, policies, plans, methods, procedures, systems, or techniques. These positions normally include the designation "Analyst" in the title.

Group C

The duties of positions in this group involve supervising or managing one or more supply functions or activities. Positions include the designation "Officer" or "Supervisory" in the title, e.g., Supply Management Officer or Supervisory General Supply Specialist.

NOTE: More detailed descriptions of work are in the series definitions and position-classification standards for the GS–2001, GS–2003, GS–2010, GS–2030, and GS–2050 series. Because of the many kinds of positions covered by this standard, no detailed duties statements have been included.

EXPERIENCE REQUIREMENTS

Except for the substitution of education for experience provided for below, applicants must show that they have had the amount of general and specialized experience indicated in the table below, and of the type and quality described in the paragraphs following:

Grade	*General experience (years)*	*Specialized experience (years)*	*Total experience (years)*
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11/15	3	3	6

General experience

Progressively responsible experience in administrative, professional, investigative, or other responsible work which has provided the applicant with a general knowledge of one or more aspects of the supply field. Such experience may have been gained in supply, purchasing, accounting, financial, statistical, merchandising, industrial planning, engineering, quality control, electronic data processing, or other similar activities. The three years of general experience must have included at least one year at or above the GS–4 level, or its equivalent.

Specialized experience

SPECIAL NOTE: Because supply activities, both within and outside of the Federal service, are organized in diverse ways depending upon the mission of the particular agency or company, specialized experience may have been gained in

*This standard supersedes the standard for this series issued in December 1968.

a wide variety of situations and kinds of positions. Thus, in determining whether certain experience should be credited as "specialized" or "general," careful attention must be given to all segments of the position—the environment and knowledges required as well as the duties and responsibilities.

In the Federal service, major supply organizations typically include functions related to supply which are classified outside of the Supply Group—such as contract and procurement in GS–1102; property disposal in GS–1104; equipment specialist activities in GS–1670; quality control in GS–1900; transportation in GS–2100; industrial engineering in GS–896, etc. Persons occupying *some* of these positions are exposed to, and often must know and apply supply management techniques and supply regulations, procedures, etc. When evaluating experience in the Federal service, it is necessary to look beyond the series code assigned to prior jobs to determine whether the experience is sufficiently pertinent to a particular job assignment to be rated as "specialized." (For example, an equipment specialist, GS–1670, working in an inventory management unit may (or may not) know and apply techniques, regulations and procedures incident to supply requirements. This experience, therefore, may (or may not) qualify him for an inventory management specialist (requirements) position.)

I. Specialized Experience Creditable for Technical Supply Positions (Group A)

a. *For all positions GS–7—*

Experience in one or in any combination of technical supply functions; or experience in related supply activities which provided the applicant with the required knowledges and abilities to perform at this level.

b. *For all positions GS–9 and above—*

The specialized experience required that is in excess of the specialized experience required for GS–7 must have been, for each type of position, as follows:

1. *For General Supply Series, GS–2001–9/15 positions:*

These are "mixed" positions, or positions including work "not elsewhere classified." For positions "not elsewhere classified," applicants must have had experience which provided a knowledge of the particular supply functions involved. For "mixed" positions, the experience must have provided a knowledge of at least one of the functions involved in the position to be filled. (See requirements under the series code below which apply to the individual parts of the position which are in the supply field.)

2. *For Supply Program Management Series, GS–2003–9/15 positions:*

Applicants must have had experience which provided an extensive knowledge of supply management. This must have been gained through progressively responsible experience in the amount shown above, in which the applicant had (*a*) supervisory, technical, or staff coordinating responsibilities in at least *two* supply functions or related supply activities which form a part of the position to be filled; (*b*) experience in a staff, analysis, or program planning position which has involved considerable emphasis on studies and plans regarding supply programs; or (*c*) supervisory, technical, or staff responsibilities in *one* of the supply functions or related supply areas in a capacity which required substantial participation in program planning and in coordinating his functional specialization into the total supply operation.

Depending upon the specific combination of work in the particular position(s) to be filled, specialized experience must have equipped the applicant to perform one or a combination of activities such as (*a*) initiating, developing, installing, or administering supply programs and regulations; (*b*) providing guidance on supply operations by developing and issuing supply handbooks and other publications for agency and/or industry use, or by sponsoring and developing training programs, conferences, and seminars; (*c*) making surveys and studies of supply operations to determine proper application of improved supply methods or approved industry tech-

niques; (*d*) providing technical assistance on supply operations to agency personnel; (*e*) developing, installing, or advising on overall financial or other management control programs for supply operations for such purposes as controlling operations, determining supply costs, planning and budgeting and evaluating supply management performance; and (*f*) developing, revising, and maintaining systems (primarily ADP) for the inventory and financial management of supplies.

3. *For Inventory Management Series, GS–2010–9/15 positions:*

Applicants must have had experience which provided a knowledge of overall inventory management systems, methods, and techniques, or an intensive knowledge of some phase of inventory management, consistent with the duties and responsibilities of the particular position to be filled. Applicants must show an understanding of the documentary regulation and control of supplies agencywide (or at an intermediate or local level when technical knowledges are required for management of items not regulated or controlled at a central point). Applicants must demonstrate some understanding of the functional relationship of the documentary management of supplies with other activities of the supply program (such as cataloging and identification of the item, procurement, physical distribution and storage, utilization, and disposal).

Depending upon the specific combination of inventory management work in the particular position(s) to be filled, specialized experience must have equipped the applicant to perform one or a combination of inventory management activities such as (*a*) initiation of action leading to cataloging or identification of items; (*b*) computations of materiel requirements or estimates for budget, procurement, disposal, provisioning, or other special programs; (*c*) controlling and converting funds into materiel of the proper kind and quality, in correct quantities at the proper time and for delivery to the correct places; (*d*) planning and coordinating supply actions to assure properly phased support to major items of equipment and/or weapons systems in test phases, in production, in service, and during phase-out periods; (*e*) initiation of action leading to procurement; (*f*) controlling stock in, due in, or planned for the distribution system on a quantitative or monetary basis; (*g*) controlling the distribution or redistribution of stock within the supply system; (*h*) initiating or requiring maintenance while items are in the inventory; (*i*) initiation of action leading to disposal of unneeded items; or (*j*) other related inventory management activities.

4. *For Distribution Facilities and Storage Management Series, GS–2030–9/15 positions:*

Applicants must have had experience which provided a knowledge of overall distribution facilities and storage management systems, techniques, and methods, or an intensive knowledge of some phase of these activities. Applicants must demonstrate an understanding of the physical aspects of managing the receipt, storage, and distribution of supplies and some understanding of the functional relationship of the physical management of supplies with other activities of the supply program (such as cataloging and identification of the item, procurement, documentary management of the inventory of supplies, utilization and disposal).

Depending upon the specific combination of work in the particular position(s) to be filled, specialized experience must have equipped the applicant to perform one or a combination of distribution facilities and storage management activities such as (*a*) determination of sites and facilities to receive, store, maintain, and distribute the flow of

materiel between the point of receipt into the supply system and the point of issue to using activities; (*b*) planning distribution facilities, storage space, personnel or other operating requirements, considering the distribution area to be served, use of commercial or Government-owned space, and availability of adequate shipment facilities; (*c*) directing, managing, and controlling storage and distribution activities, including, but not limited to physical receipt, inspection, storage, preservation, stock selection, stock levels, and shipment of supplies and equipment; (*d*) staff activities, such as initiating, developing, installing or administering distribution facilities or storage management programs; conducting surveys or providing technical assistance on distribution and storage policies, methods, procedures pertaining to utilization of manpower and equipment, allocation of space, installation of uniform and economical methods of warehousing, preservation and protection of supplies, materials handling equipment, or other storage and distribution functions, processes, or techniques; or (*e*) other related activities.

5. *For Supply Cataloging Series, GS-2050-9/15 positions:*

Applicants must have had experience which provided a knowledge of cataloging or other management systems, methods, and techniques for identifying items of supply consistent with the duties and responsibilities of the particular position to be filled. *Applicants must have some knowledge of the technical characteristics or properties of supply items gained from education or experience* in (*a*) working with or use of the item, or (*b*) research in supply catalogs, manufacturers' catalogs, parts lists, blueprints, specifications, and other documentary data. Additionally, they require a knowledge of cataloging, commodity classification, item identification, or other descriptive supply management data. Applicants must show some understanding of the functional relationship of these identification systems with other activities of the supply program.

Depending upon the particular combination of work in the particular position(s) to be filled, specialized experience must have equipped the applicant to perform one or a combination of activities such as (a) development, establishment, analysis, and maintenance of supply catalog or other reference manuals, systems, policies, and procedures; (b) supply cataloging operations, including the determination of authorized nomenclature, the development of description patterns, development of item identifications, the preparation of item descriptions, the development and application of commodity classification systems, and the establishment of accounting, identification and classification numbers or symbols for individual items and for classes of supplies, equipment, and other materiel; (c) design and establishment of supply management data codes for application in manual and conventional or high-speed data-processing systems; (d) providing technical guidance and assistance to insure proper identification and supply concept of items being procured or in the supply system to agency or contractor personnel; (e) determining item interchangeability where the physical, technical, and environmental characteristics and performance parameters are equal to or greater than those specified in valid source data; or (f) other work of a related nature.

II. Specialized Experience Requirements for Analyst Type Positions (Group B)

Specialized experience for management-analyst-type positions includes work which required the analysis, evaluation, development and improvement of managerial policies, practices, methods, systems and procedures. This experience may have been acquired in staff positions in which the applicant planned, supervised or made comprehensive studies of organization,

operations, procedural systems, or other management functions. The experience must demonstrate that the applicant acquired and systematically and successfully applied a practical and theoretical knowledge of a wide variety of managerial functions, practices, and techniques in the solution of management programs.

For GS-7 and GS-9 management analyst positions in one of the supply fields, the required specialized experience may be *either* technical supply experience as described for the particular series under I above, *or* experience as a management analyst in a supply organization or in some other management environment.

For these positions at GS-11 and above, the specialized experience should have provided the applicant with a practical and theoretical knowledge of a wide variety of managerial functions, practices and techniques in the solution of management problems, *as well as* specialized knowledge of the pertinent supply function or activity, as described above for Group A positions.

III. Specialized Experience Requirements for Supervisory or Officer Positions (Type C)

For supervisory positions, see the qualification standard for Supervisory Positions in General Schedule Occupations, in part III of this handbook.

POSITIONS INVOLVING PERSONAL CONTACTS

For any of the positions that involve extensive personal contact work, applicants must demonstrate ability to deal courteously and effectively with people, to exercise tact, to express ideas orally. Applicants who do not demonstrate possession of the required characteristics to an appropriate degree will not be appointed to these positions.

QUALITY OF EXPERIENCE

Eligibility in any grade will be based upon a clear showing that the applicant has had experience of a scope and quality sufficient to give him the ability to handle technical or managerial assignments commensurate with the duties of the position. For any grade, length of experience beyond the required minimum is less important than demonstrated success in performing duties of a responsible nature. For each grade, GS-7 through GS-11, at least six months of specialized experience must have been at a level of difficulty and responsibility comparable to that of the next lower grade, or one year of such experience at a level comparable to the second lower grade in the Federal service. For grades GS-12 and above, at least one year of specialized experience must have been at a level comparable to the next lower grade in the Federal service.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. Study successfully completed in an accredited college or university, which included an average of six semester hours (or its equivalent) per year in such fields as business administration, commerce, marketing, industrial management, engineering, economics, accounting, business or commercial law, statistics or closely related fields, may be substituted for experience at the rate of one year of study for nine months of experience up to a maximum of four years of study for the three-year general experience requirement. (Four years of such study, or completion of all requirements for a bachelor's degree, meets all the requirements for grade GS-5.)

2. Full-time* graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For one year of specialized experience.*— One full academic year of graduate educa-

*Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for one year of specialized experience.

tion in such fields as business administration, commerce, marketing, industrial management, engineering, economics, accounting, statistics, or other directly related fields. (This amount and kind of education meets all the requirements for grade GS–7.)

b. *For two years of specialized experience.*— For Supply Program management positions only, completion of all requirements for a master's or an equivalent degree, or two full academic years of graduate education, which is in one of the fields described in paragraph a, above. (This amount and kind of education meets all the requirements for Supply Program management positions at grade GS–9.)

3. The Superior Academic Achievement Standard in section III of Part II, Instructions to Users, of this handbook, is applicable at grade GS–7.

NOTE: No substitution may be made (1) for any required supervisory or managerial experience or (2) except when the total experience requirements are met by educational substitution, for any experience required to be at a level of difficulty comparable to that of the next or second lower grade in the Federal service.

WRITTEN TEST

A written test is required for grades GS–5 and GS–7. It should be waived for inservice placement actions, but not for appointments outside the register.

BASIS OF RATING

Applicants for positions at GS–7 and below will be rated on the basis of the written test and an evaluation of their education and experience.

Applicants for positions above GS–7 will be rated on the basis of an evaluation of their education and experience.

PHYSICAL REQUIREMENTS

See Part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

SUPPLY CLERICAL AND TECHNICIAN SERIES*

Supply Clerk GS-4/5**

Supply Technician GS-6/8

This standard applies to all clerical and technical support positions in the GS-2000 Supply Group, GS-4 through GS-8, except those for which specific standards exist.

DESCRIPTION OF DUTIES

Supply clerks and technicians perform a wide range of substantive clerical and technical support work necessary to insure the effective operation of supply management systems. For example, they perform services in support of inventory control, storage and distribution, cataloging or supply identification systems, property utilization, or other related supply activities; or work associated with mechanized (ADP or EAM) or manual supply accounting systems when the paramount knowledge and training requirements are related to the supply field.

(Additional information on duties and responsibilities may be obtained from the position classification standard for this series.)

EXPERIENCE AND EDUCATION REQUIREMENTS

Except for the substitution of education or training provided for below, applicants must have had the kind and amount of experience shown in the following table, and as described in the statement immediately following:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS-4	1	1	2
GS-5	1	2	3
GS-6	1	3	4
GS-7 and above	1	4	5

*This standard supersedes the standard for the GS-2040, Supply Clerical and Assistance Series, issued in February 1964 and the GS-2000, Publications Supply Series, issued in April 1962.

**Qualification standards for Clerk, GS-300-1/3 are to be used for filling Supply Clerk positions in grades GS-2005-1/3.

Note: For supervisory positions, see qualification standards, part III, X-118, for Supervisors of Work Classifiable at One-Grade Intervals.

1. *General experience*

General experience is clerical or office work of any kind which has demonstrated the ability to perform satisfactorily at the grade level of the position. Such work may have involved: (*a*) Maintaining records; (*b*) receiving, screening, reviewing, and verifying documents; (*c*) searching for and compiling information and data; (*d*) providing a central source of information on the activities of an organization orally or by correspondence; (*e*) preparing and/or verifying the validity of documents with which the organization is concerned; (*f*) operation of office machines requiring performance of related clerical tasks.

General experience may also include work involved in the physical handling of supplies and equipment (e.g., warehousing or other trade or craft jobs) provided this gave the applicant some general knowledge of supply transactions and regulations, procedures, identification codes, etc.

(Excess specialized experience may be substituted for general experience.)

2. *Specialized experience*

Specialized experience is supply work or closely related activities: (*a*) which has required the applicant to acquire and apply knowledge of the rules, regulations, procedures, and program requirements of one or more areas of a supply system; and (*b*) which has demonstrated the applicant's ability to perform at the level of the position to be filled.

Acceptable specialized experience may be gained in the particular kind of work which forms the principal part of the position to be filled; or in any one or a combination of supply fields; or in activities closely related to the work in terms of knowledges or clerical processes provided in each case. (For example, a file clerk in a supply organization may acquire sufficient knowledge of supply regulations, procedures,

Reprinted without change
December 1975 (TS 156)

forms, nomenclature, etc., to be considered qualified for a supply clerk or technician position.) Specialized experience may also have been gained in functions related to supply (such as procurement, property disposal, quality control, transportation, etc.) if the applicant was required to know, apply, or use supply regulations, procedures, forms, nomenclature, etc.

These requirements for specialized experience will ordinarily apply. General experience may be substituted for 6 months of the specialized experience required for GS–4 positions and for 1 year of the specialized experience required for positions at GS–5 and above in in-service placement actions where it can be shown that:

(1) The candidate's background gives positive evidence that he possesses the essential skills and abilities needed for the position;

(2) The candidate has had experience that has provided a general familiarity with the work of the specialization or function for which he is being considered; *and also*

(3) The overall evaluation of the candidate's background provides strong evidence that he can successfully perform the higher grade work with approximately the same amount of training required by an individual with directly related experience.

→*Supervisory positions*

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

(3) *Quality of experience*

For positions at any grade, the required amount of experience will not in itself be accepted as proof of qualification. The applicant's record of experience and training must show that he has the ability to perform the duties of the position.

In addition, applicants must show either: (*a*) 1 year of specialized experience at a level of difficulty comparabe to the next lower grade in the Federal service; or (*b*) 2 years comparable to the second lower grade in the Federal service, of which at least 1 year must have been specialized experience. (*Note:* General experience may be substituted for specialized experience as prescribed in the third paragraph under item 2 of Specialized Experience, above.)

4. *Substitution of education and training for experience*

For the first 2 years of required experience (one general and one specialized), successfully completed resident education in a school above the high school level may be substituted for experience on the basis of *one-half academic year* of study (i.e., 18 weeks of substantially full-time study, or 15 semester hours, or the equivalent) for *6 months* of experience. No credit will be allowed for training which has been obtained only or primarily in the basic skills of shorthand or typing, or refresher courses. Two full years of study of this type may be substituted for a maximum of 2 years of required experience (1 year of general and 1 year of specialized experience) and is fully qualifying for grade GS–4.

For any experience required in excess of 2 years, education in a school above the high school level may be substituted at the rate of *1 academic year* of education for *6 months of experience*. A full 4-year course of this type of study may be substituted for a maximum of 3 years of the required experience (1 year of general plus 2 years of specialized experience) and is fully qualifying for grade GS–5.

SUPPLY CLERICAL AND TECHNICIAN SERIES

WRITTEN TEST

A written test of abilities necessary to learn and perform the duties of these positions is required for grade GS–4. The test should be waived for in-service placement actions, but not for appointments outside the register. No written test is required for positions at grades GS–5 and above.

PERSONAL CHARACTERISTICS

Some supply clerical and technician positions may involve substantial contact with others outside the immediate employing office. Such duties require tact, courtesy, and capacity for effective public contacts. In filling such positions competitively and within the service, appointing officers should assure themselves by reference checks, personal interviews, or other appropriate means that applicants possess these qualities to the degree necessary for satisfactory performance of the duties of such positions.

BASIS OF RATING

Competitors for all positions will be rated on a scale of 100. Rankings will be made:

1. For competitive positions at grade GS–4, for which the test is required, on the basis of written test results.
2. For positions at grades GS–5 and above, or for in-service placement actions at grade GS–4 for which the written test is not required, on the basis of the extent and quality of training and experience relevant to the duties of the position. Information upon which to make ratings will be secured from application forms, and from any other information such as confidential inquires which may be supplied to or requested by the Commission.

SELECTIVE CERTIFICATION

Because of the wide range of supply activities, some positions may require specialized experience in specific supply functions or commodities, or in automated supply systems. When required, selective certification may be used both for competitive appointments and in-service placement, or for other personnel actions at GS–5 and above.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

PACKAGING SERIES*

For Positions in the Packaging Occupation, GS–2032,

Grades GS–5/15

Packaging Specialist

Supervisory Packaging Specialist

DESCRIPTION OF WORK

Packaging Specialists develop plans to protect a variety of products against damage and deterioration from the time they enter the supply system until they are used. Employees in this occupation determine the best methods of providing packaging protection; establish packaging standards; develop packaging and preservation specifications; evaluate packaging methods; and carry out other packaging assignments.

Supervisory Packaging Specialists supervise and manage packaging programs.

EXPERIENCE, EDUCATION, AND TRAINING REQUIREMENTS

Except for the substitutions provided for below, candidates must have had experience of the kinds and amounts prescribed in the following paragraphs:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11/12	3	3	6

General experience

General experience is experience in administrative, technical, analytical, or other work which has provided the applicant with (*a*) a general knowledge of basic supply practices *or* basic packaging practices; and (*b*) skill in dealing with others in person-to-person work relationships. Such experience may have been gained in Government or industry, in any line of work, including, but not limited to, such fields as supply management, purchasing, production, merchandising, storage, transportation, industrial planning, inventory control, engineering, strength analysis, materials handling, quality control, inspection of materials, or similar activities. It also includes responsible experience in a trade or craft involving control, packing, storage, movement, or other activities associated with supplies, materials, equipment, or other goods.

Specialized experience

Specialized experience is experience which has provided applicants with knowledges, skills, or abilities required for work in the occupation, such as:

—For positions at grade GS–7

- Knowledge of basic packaging materials, methods, and practices;
- Knowledge of basic supply operations *or* basic supply terminology *or* basic procedures for storing and moving goods in a supply system;
- Ability to understand packaging plans, guidelines, or specifications;
- Ability to select, analyze, and present packaging data clearly and accurately.

—For positions above grade GS–7

- Knowledge of packaging procedures, regulations, and policy guidelines;
- Ability to analyze data, study alternative courses of action, develop sound packaging proposals and recommendations;
- Ability to develop packaging plans, guidelines, and related documents.

Specialized experience that may provide the knowledges, skills, and abilities required may have been acquired in activities such as the following, or in other types of activities:

—For positions at grade GS–7

- Receiving, storing, or issuing supplies;
- Inspecting containers or supplies for quality control purposes or to provide a basis for damage claims;

*This standard supersedes the standard for the Preservation and Packing Series, GS–2032 that was issued in September 1963 and amended in May 1968.

- Following packaging plans in preparing supplies and goods for shipment or storage.

—For positions above grade GS–7

- Developing packaging plans, specifications, standards, or guidelines;
- Teaching courses on packaging technology and procedures;
- Advising agencies or business firms on packaging problems, policies, or procedures;
- Contracting and negotiating for packaging, storage, shipment, and related services for governmental agencies or business firms;
- Reviewing or inspecting packaging operations carried out by contractors or subcontractors.

Level and quality of experience

For positions through grade GS–11, at least 6 months of the required specialized experience must have been at a level of difficulty and responsibility comparable to the next lower level in the Federal service or 1 year at a level of difficulty and responsibility comparable to the second lower grade in the Federal service.

For positions in grades GS–12 and above, at least 1 year of the required specialized experience must have been at a level of difficulty and responsibility comparable to the next lower level in the Federal service.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's total record of experience and education must show that he has the ability to perform the duties of the position to be filled.

Supervisory experience

For supervisory positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations," in part III of this handbook.

Substitution of education for experience

1. Successfully completed study in a residence institution above high school level may be substituted for general experience at the rate of 1 academic year of study for 9 months of experience up to a maximum of 4 years of education for 3 years of general experience, or for all experience requirements for grade GS–5.
2. Full-time* graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.
   a. *For 1 year of specialized experience*
   One full academic year of graduate education in one of the following: business administration, engineering, chemistry, physics, metallurgy, wood technology, distribution or logistics management, transportation management, marketing, packaging technology, or other directly related fields. (This amount and kind of education meets all the requirements for grade GS–7.)
   b. *For 2 years of specialized experience*
   Completion of all requirements for a master's or an equivalent degree, or 2 full academic years of graduate education, which is in one of the fields described in paragraph "a" above. (This amount and kind of education meets all the requirements for grade GS–9.)
3. The Superior Academic Achievement standard in section III of part II, Instructions to Users, of this handbook is applicable at grade GS–7.

WRITTEN TESTS

A written test of learning abilities is required for competitive appointment to positions at grade levels GS–5 through GS–7. No written test is required for positions above the GS–7 level.

For inservice placement actions at grades GS–5 through GS–7, a passing score is not re-

*Part-time graduate education is also accepted at the rate of 30 semester hours (or equivalent) for 1 year of specialized experience.

quired, but the test may be used, in combination with other evaluation methods, as one element in ranking employees for reassignment, promotion, transfer, reinstatement, or other internal placement into this occupation. (See FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement, especially Appendix A: Guidelines for Use of Written Tests.)

The test may not be waived for appointments outside the register.

BASIS OF RATING

1. *For competitive appointments at grades GS–5 through GS–7:* Candidates are rated on the basis of the written test.
2. *For competitive appointments and for inservice placement actions above grade GS–7:* Candidates are rated on the basis of an evaluation of the extent and quality of their experience, training, and education that are relevant to the duties of the position to be filled.
3. *For inservice placement actions at grades GS–5 through GS–7:* Candidates are rated on the basis of their experience, training, and education that are relevant to the duties of the position to be filled. When the written test is used, it may also be considered as one element in ranking candidates for positions at this level.

Information used in rating will be obtained from application forms and supporting papers, from former employers and associates, and from other sources.

PHYSICAL REQUIREMENTS

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

GUIDES FOR EVALUATING CANDIDATES FOR INSERVICE PLACEMENT

Employees being considered for inservice placement to this occupation should be evaluated on the basis of their total qualifications as related to the position to be filled.

—Employees considered for positions at full working levels in the occupation should be evaluated in terms of their ability to enter the work and begin to perform Packaging Specialist duties with a minimum of training and orientation to the policies and procedures of the organization.

- The focus in this type of evaluation is on the employee's *demonstrated* knowledges, skills and abilities.

—Employees considered for training and development positions in the occupation should be evaluated in terms of their ability to absorb the training and acquire new knowledge, *and* in terms of their ability, with training and experience, to meet the demands of the occupation at the full working level.

- The focus on this type of evaluation is on the employee's *potential* to learn and to succeed in this kind of work.

Suggestions concerning what to evaluate

(1) *The nature, scope, and complexity of the work which the employee has performed:*

—whether the employee's experience has directly involved some aspects of packaging work and provided knowledge of packaging techniques (e.g., directly pertinent work in the field of packaging technology), or whether it involved related types of work that provided indirect knowledges of packaging matters (e.g., supply work, storage work, transportation work, purchasing work, or other related fields in which packaging matters are considered).

—the variety of kinds of pertinent experience and training courses the employee has had.

(2) *Knowledge of packaging methods, procedures, guidelines, and policies (or ability to learn packaging methods, procedures, guidelines, and policies):*

—whether the employee's experience, education, or training have provided him with knowledge of packaging technology, such as,
- packaging materials and methods, e.g., containers, packing methods, wrapping, cushioning, blocking, bracing, marking, stacking, etc.;
- deterioration characteristics of various materials under different conditions of climate, exposure, etc.;
- preservative materials and methods, e.g., protective coatings, dessicants, insulation, wrappings;
- methods of carrying out packaging operations, e.g., layout of packing lines and arrangement of equipment, etc.

—whether the employee's experience, education, or training have provided him with knowledge of packaging guidelines, handbooks, standards, specifications, regulations, or policies (e.g., from the standpoint of applying, interpreting, *or* developing such written materials on packaging).

(3) *Knowledge of supply and transportation operating practices relating to storage, handling, movement, and use of goods (or ability to learn supply and transportation operating practices)*:

—whether the employee's experience, education, or training have provided basic knowledges of supply and transportation practices pertinent to packaging problems and plans.

—whether he has been involved with materials—handling practices, storage problems, or supply usage practices (e.g., purchasing, stock control, classifying, batching supplies, etc.), that relate to packaging considerations.

(4) *Ability to meet and deal effectively with others:*

—the degree to which the employee has demonstrated ability to deal with a variety of people under different circumstances.

—whether he has been able to coordinate his work with that of other employees and to adjust to the needs and schedules of others.

—whether he has shown persuasive skill in leading other employees to understand and accept his point of view.

—whether he has demonstrated tact, poise, ability to remain calm under pressure.

(5) *Analytical ability:*

—the degree to which the employee has demonstrated ability to analyze facts, evaluate alternatives, foresee potential problems in different courses of action.

—whether the employee has shown ability to consider pertinent facts, the ideas of others, and precedents in evaluating various possible courses of action.

—the degree to which the employee has shown ability to reach conclusions or decisions, to make recommendations based on sound analysis.

—whether the employee has demonstrated ability to meet deadlines in analytical type of work.

—whether the employee has demonstrated resourcefulness in solving problems.

(6) *Ability to speak and write effectively:*

—the degree to which the employee has demonstrated ability to express himself clearly and effectively, both in writing and orally.

—the extent of his ability to explain plans, decisions, procedures, or requirements in a way that gains understanding and a favorable response.

SALES STORE CLERICAL SERIES

Sales Store Checker GS-2/3
Sales Store Clerk GS-2/3
Supervisory Sales Store Checker GS-4
Supervisory Sales Store Clerk GS-4

Description of work

Sales Store Checkers perform check-out duties involving the operation of a cash register, bookkeeping machine, or similar machine to record and total the prices of items purchased at retail on a cash or charge basis.

Sales Store Clerks perform any type of sales store clerical work which does not involve check-out duties to a significant extent. → Such work includes, for example, pricing individual items, maintaining inventory records, and preparing stock replenishment orders. ←

Employees in supervisory positions supervise the work of sales store checkers or sales store clerks, whichever is indicated in the title of the position.

Experience requirements

Only the experience requirements and the specific substitutions described for each grade level are acceptable:

GS-2: Six months of general experience *or* graduation from a senior high school.

GS-3: A total of 1 year of education or experience as follows:

1. Six months of general experience *or* 6 months of successfully completed full-time academic study above high school level; *plus*
2. either
   (a) Six months of specialized experience *or*
   (b) Three months of specialized experience *and* successful completion of a specialized course of instruction of 50 hours or more in performing duties of the kind to be performed in the position to be filled.

GS-4: A total of 2 years of education or experience as follows:

1. One year of general experience *or* 1 year of successfully completed academic study above the high school level; *plus*
2. either
   (a) One year of specialized experience *or*
   (b) Nine months of specialized experience *and* successful completion of a specialized course of instruction of 50 hours or more in performing duties of the kind to be performed in the position to be filled.

At any level specialized experience may be substituted for required general experience.

For first level supervisory positions no supervisory experience is required but supervisory aptitude must have been demonstrated. Supervisory aptitude or ability may be evaluated by any of the methods described in the guide for evaluating supervisors of work classifiable at one-grade intervals, published in Handbook X-118.

General experience is progressively responsible experience in clerical, office or retail sales store work of any kind in which the applicant has demonstrated ability to perform satisfactorily at the grade level of the position to be filled.

Specialized experience is progressively responsible experience in performing the kind of duties which constitute the principal work of the position to be filled.

Written test

→All applicants for positions at the GS-2 level are required to pass a written test EXCEPT THOSE CANDIDATES WHO HAVE EXPERIENCE AND/OR TRAINING BACKGROUNDS WHICH QUALIFY THEM FOR POSITIONS IN THIS SERIES AT THE GS-3 LEVEL.

The written test may be waived in noncompetitive actions (but not for appointments outside the register).

All applicants at GS–3 level and above are evaluated on experience and/or training only, with no written test required.

Basis of rating

Applicants for GS–2 level positions will be ranked on the basis of their score on the written test; however, in issuing an announcement for GS–2 level positions in this series, the examining office should modify the basic standard to waive the written test for grade GS–2 applicants who meet the experience and/or training requirements for grade GS–3. The rating for GS–2 in such cases should be based on the extent and quality of such experience and/or training using the same rating schedule as for GS–3 level.

Applicants for whom the written test may be waived should be given the option of taking the written test. Any applicant who chooses to take the written test should be credited with either the written test rating or the rating from an evaluation of their experience and/or training, whichever is higher. If an applicant is eligible at grade GS–3, he/she should be rated eligible at grades GS–2 and GS–3 regardless of the written test score.

Applicants for positions at GS–3 level and above will be ranked on the basis of general and/or specialized experience and/or training. ←

Physical requirements

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

TRANSPORTATION CLERK AND ASSISTANT SERIES

Qualification Standard for the Transportation Clerk and Assistant Series, GS–2102 [1]

(*Note:* This qualification standard has been developed for interim use until a full study of the occupation can be made. Though it is intended for use primarily for inservice placement, it may be used in filling positions competitively from appropriate registers.)

Transportation Clerk and Assistant GS–4 and above [2]

DESCRIPTION OF WORK

Transportation Assistants perform a variety form transportation clerical or technical work of a type not classifiable in other series in the Transportation Group, GS–2100.

Typical duties for *Transportation Clerks* include: examining various transportation documents for conformance with established rules and procedures; providing basic information about transportation regulations, procedures, or programs to employees or the general public; compiling data for and preparing periodic and special transportation reports; or providing clerical support in a transportation unit where the work requires substantial knowledge of transportation or traffic management rules, regulations, procedures, and program requirements.

Transportation Assistants perform a variety of technical support work which is usually related to one of the transportation specialties. They may assist one or more transportation or traffic management specialists in a limited area of assignment or they may independently perform assignments in a prescribed segment of a transportation program where a fully qualified transportation specialist is not required.

[1] This standard is also to be used in filling all other clerical and technician positions in the GS–2100 group for which no specific qualification standards exist.

[2] Qualification standards for Clerk, GS–300 1/3 are to be used for filling Transportation Clerical positions in grades below GS–4.

EXPERIENCE, EDUCATION, AND TEST REQUIREMENTS

For Grade GS–4 applicant must:

1. Demonstrate the ability to learn and apply a variety of regulations and procedures through either:
   a. Two years of responsible office clerical experience, at least one year of which was at a level comparable to that of grade GS–3 in the Federal service;

   OR

   b. Succesful completion of two academic years of resident education in a school above the high school level (e.g., 30 semester hours of college or junior college work, and 36 weeks of business, transportation, or traffic management school are each equivalent to one academic year);

   OR

   c. Any combination of the above;

   AND

2. Pass a written test (when the position is filled competitively).

For grade GS–5

Applicants must demonstrate the ability to interpret, explain, and/or apply the basic rules, regulations, policies, and procedures of a transportation program in one of the following ways:

1. Meet the requirements for the GS–4 *plus* one additional year of responsible clerical, administrative, or technical experience in any area of transportation or traffic management which is at a level comparable to that of grade GS–4 in the Federal service. Examples of qualifying experience include transportation clerical, shipment clerical, or freight rate work;

   OR

2. One year of experience of the type required for GS–4 *plus* successful completion of two academic years (72 weeks) of resident education in a school above the high school level *which specializes in transportation or traffic management* (i.e., the course work at these schools is limited

exclusively to such subjects as freight classification and rate structures, transportation economics, shipping procedures, and other transportation subjects);

OR

3. Successful completion of the requirements for a bachelor's degree at an accredited college, which included or was supplemented by at least 12 semester hours of course work in transportation, traffic management, or closely related subjects;

OR

4. Any appropriate combination of the above.

(*Note:* A written test is not required at GS–5 and above.)

For grade GS–6

Applicants must meet the requirements for grade GS–5 *plus* have one additional year of responsible experience in the same transportation field as the position to be filled. The "same transportation field" can mean the same mode (rail, water, air, motor), the same type of service (passenger, freight), the same type of transportation program (traffic management, safety inspection, research and development, etc.) or any combination of the above depending on the duties of the position to be filled. This additional year of experience must be at a level comparable to that of grade GS–5 in the Federal service.

(*Note:* Education is not substitutable for the additional year of experience required at grade GS–6 and above.)

For grade GS–7 and above

Applicant must meet the requirements of the next lower grade, *plus* have one additional year of responsible experience in the same transportation field as the position to be filled. At least one year of experience must be comparable to the next lower grade or two years of experience must be comparable to the second lower grade in the Federal service.

No more than six years total experience are required for positions at GS–8 and above.

For Supervisory positions

Apply the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part II of this handbook in conjunction with this standard.

BASIS OF RATING

All applicants will be ranked on a scale of 100, as follows:

1. Applicants for positions at grade GS–4 will be ranked on a combination of their written test score and an evaluation of their experience, education, and training relevant to the duties of the position.
2. Applicants for positions at grade GS–5 and above will be ranked on the basis of an evaluation of their experience, education, and training relevant to the duties of the position.

SELECTIVE PLACEMENT

At grades GS–5 and above, positions vary significantly in the kinds of specific knowledges, skills, and abilities required to perform the work. Therefore, certification for individual positions may be limited to applicants with demonstrated knowledge of specialized areas of transportation clerical or assistant work (such as, shipment clerical, loss and damage claims, or motor carrier regulations). However, agencies requesting selective placement must document the connection between the type of experience they wish to require and the duties of the position to be filled.

INSERVICE PLACEMENT

Modification of Qualification Requirements

1. The written test required at grade GS–4 is not to be used for inservice placement actions.
2. The following provisions apply to lateral reassignment only:
   a. The requirement for one year of experience in any area of transportation at grade GS–5 may be waived when the candidate has had experience that has provided a general familiarity with

transportation work and has demonstrated the candidate's ability to interpret, explain, and/or apply some type of rules, regulations, or procedures.

b. The requirement at grade GS–6 for one year of transportation experience in the *same field* as the position to be filled may be waived when the candidate has related transportation experience that has provided a general familiarity with the work of that position.

Suggestions for Evaluating Inservice Applicants

Most positions in this series will be filled through noncompetitive actions, by transfer, reassignment, or promotion of those already in Federal service. Guidelines for appraising employee's qualifications and promotion potential are discussed in more detail in FPM Chapter 335.

The knowledges, skills, and abilities required to perform the duties of positions in this series will vary, depending upon the type of transportation program involved, and the way the work is organized. Therefore, the immediate supervisor and others who know the job well should be consulted regarding the specific requirements of the position to be filled. For example, the ability to read and apply a variety of regulations and procedural guidelines seems to be a major requirement for many of these positions. In addition, many positions require the ability to carry out simple arithmetic computations. Also, most Transportation Clerks and Assistants will have substantial contact with others outside the immediate employing office. In these situations, the work requires tact, patience, courtesy, a clearly understandable speaking voice, and ability to make effective public contacts.

The employee's training and experience should be evaluated in terms of the knowledges, skills, and abilities required for success *in the position to be filled*. Potential sources of information about the employee's qualifications include: personnel folders and personal qualification statements; written performance appraisals and supervisory evaluations; confidential reference inquiries; and interviews with the employee and with present and former supervisors.

In ranking candidates, other things being equal, the candidate with directly related experience should be ranked higher than the candidate without such experience. Extra credit may be given to those who, in addition to directly related experience, possess experience in a broader range of transportation work, as long as this experience will be of benefit in the position, and gives evidence of greater potential for development. Also, extra credit may be given to those who have successfully completed educational courses related to the work (provided these have not already been credited under the substitution of education for experience provisions).

PHYSICAL REQUIREMENTS

Any physical condition which would cause the applicant to be a hazard to himself, herself, or to others, or which would prevent efficient performance of the duties of the position is disqualifying. Good distant vision in one eye is required for some positions. Ability to read without strain printed material the size of typewritten characters, with or without corrective lenses, is required. Ability to hear the conversational voice, with or without a hearing aid, is required, as is the ability to speak without significant impairment. For most positions, a loss or deformity of an arm, hand, leg, or foot will not disqualify an applicant for appointment, although it may be necessary that the condition be compensated by use of satisfactory prosthesis. Applicants must possess emotional and mental stability.

MOTOR VEHICLE LICENSE

A few positions may require the occasional use of an automobile in the performance of the work. For these positions, applicants may be required to possess a valid automobile operator's license or obtain one within 30 days of appointment.

TRANSPORTATION INDUSTRY ANALYSIS SERIES*

For Positions in the Transportation Industry Analysis Series
GS–2110–5/15
Transportation Industry Analyst
Supervisory Transportation Industry Analyst
Transportation Industry Analysis Officer

DESCRIPTION OF WORK

This series includes supervisory and nonsupervisory positions which require a practical knowledge of the analytical, evaluative, advisory, or similar work pertaining to the regulation of the transportation industry with regard to operations, economics, equity in industry practices, and protection of the public interest. The work requires a knowledge of transportation industry regulatory controls, the customs and competitive practices of carriers, and carrier operations, services, and facilities. The work also requires a general knowledge of economics, statistics, law, business management, and related subject-matter areas, but does not require full training and professional competence in any of those fields.

EXPERIENCE AND TRAINING REQUIREMENTS

Grade level	General experience (years)	Specialized experience (years)	Total experience (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11 and above	3	3	6

General experience

This is experience which has provided a knowledge of and skill in the study, development or evaluation of economic, statistical, financial, operational, or market data or information pertaining to the business practices, market structures and trends, or competitive relationships of commercial organizations. The experience may have been gained in performing or assisting in work such as the following, or in related work in administrative, professional, investigative, or other similar fields:

- Selecting, evaluating, and reporting economic, financial, and statistical data relating to commercial or industrial operations; *or*
- Analyzing operating costs to determine basic pricing considerations for products or services; *or*
- Reviewing financial and related reports for compliance with prescribed reporting requirements and to evaluate the operating results and financial position of commercial organizations; *or*
- Examining business operations and practices; *or*
- Conducting market analyses requiring the evaluation of the nature of service required, and potential users of the service; *or*
- Reviewing contracts, agreements, and corporate relationships of industrial and commercial firms.

Specialized experience

This is experience which demonstrates knowledges, abilities and skills such as the following:

For the GS–7 level:

- Knowledge of Federal and State laws, regulations, rules, procedures, and practices pertaining to the economic regulation of the transportation industry;
- Familiarity with the trade customs and competitive relationships of carriers in various modes of transportation;
- Understanding of the operating practices, financial position and structure, and management organization of carrier firms.

For GS–9 and above:

In addition to the knowledges, skills, and abilities described for GS–7 above:

- Knowledge of freight and passenger markets, service, and traffic trends and the factors that influence them;
- Knowledge of the characteristics and use of equipment, services, property, and facilities used in the movement of freight

*This standard supersedes the standard recodified in December 1979.

and passengers by various modes and carriers;

- Ability to analyze, interpret and apply pertinent data relating to transportation economics;
- Ability to appraise the rate and route structures and service patterns of transportation systems and the basic technical methods and practices employed in establishing, developing, improving and controlling rates and routes.

Specialized experience may have been acquired with such organizations as a carrier or shipper, or carriers' or shippers' associations, transportation consulting organizations, State, local, or Federal regulatory bodies, or similar groups or organizations.

Some positions may require specialized experience in a particular mode of transportation (e.g., air, railroad, motor carriers, etc.), or in a particular kind of traffic (e.g., passenger, freight, etc.), or both.

Additional requirements

The total experience must also have demonstrated the applicant's ability:

—To communicate, orally and in writing, in a clear, logical, and concise manner;

—To use sound judgment in analyzing facts, situations, conditions, and problems, and in making recommendations which are technically supported and administratively feasible;

—To establish and maintain effective relations in an objective and impartial manner with representatives of carriers and of other industry and commercial enterprises, and with others whose activities are subject to or affected by Federal regulatory controls.

SUPERVISORY AND MANAGERIAL POSITIONS

For supervisory and managerial positions, see the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this Handbook.

QUALITY OF EXPERIENCE

The candidate's experience must have been of a progressively responsible character and must demonstrate ability to perform fully the duties of the position to be filled. For positions at grades GS–11 and below, at least 6 months of the required specialized experience must have been at a level of difficulty and responsibility equivalent to that of the next lower grade, or 1 year of such experience at a level equivalent to the second lower grade in the Federal service. For positions at grades GS–12 and above, at least 1 year of the required specialized experience must have been at a level equivalent to the next lower grade in the Federal service.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

1. Successfully completed study in an accredited college or university may be substituted at the rate of 1 year of academic study for 9 months of experience for a maximum of 3 years of general experience. The education must have included an average of 6 semester hours a year (or equivalent) in one or a combination of courses in economics, business administration, business or commercial law, accounting, finance, statistics, traffic management, or transportation. (Four years of such study, or completion of all requirements for a bachelor's degree, meets in full the requirements for grade GS–5.)
2. Full-time* graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position to be filled.

a. *For 1 year of specialized experience*

One year of full-time education in economics, business administration, account-

*Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for 1 year of specialized experience.

ing, finance, statistics, traffic management, or transportation. (This amount and kind of education meets all the requirements for grade GS–7.)

b. *For 2 years of specialized experience*

Completion of all requirements for a master's or an equivalent degree, or 2 years of full-time graduate education, which is in the fields described in paragraph "a" above. (This amount and kind of education meets all the requirements for grade GS–9.)

3. The Superior Academic Achievement Standard in section III of part II, Instructions to Users, of this handbook, is applicable at grade GS–7.
4. Completion of a total of at least 6 years of legal and paralegal education which meets all the requirements for an LL.B. or J.D. degree will provide eligibility in full at grade GS–9.

WRITTEN TEST

A written test is required for competitive appointment at grades GS–5 and GS–7 for purposes of obtaining eligibility but not at grades GS–9 and above. The test may not be waived for appointments outside the register.

BASIS OF RATING

Applicants for positions at grades GS–5 and GS–7 will be rated on a scale of 100 based on the score on the written test and an evaluation of their experience and education.

Applicants for positions at grades above GS–7 will be rated on a scale of 100 based on their experience and training as shown in their applications obtained by the Office of Personnel Management.

INTERVIEW

A preemployment interview may be required to determine that applicants possess the personal characteristics necessary for successful performance of the work.

GUIDES FOR EVALUATING CANDIDATES FOR INSERVICE PLACEMENT

In evaluating candidates for inservice placement, consideration should be given to the relationship of the candidate's total qualifications to the position to be filled. The following guides are offered in considering such candidates:

Suggestions concerning what to evaluate

(1) *The nature, scope and complexity of the work which the candidate has performed:* For example, experience which has involved several modes of transportation, a variety of kinds of carriers or different types of traffic will ordinarily be evaluated at a higher quality level than experience which has involved limited numbers, kinds, varieties or types of modes, carriers, or traffic; experience which has involved the analysis of a variety of technical problems, questions, or issues, such as patterns of traffic, changes in rate levels, transportation trends, potential demands, etc., will ordinarily be evaluated at a higher quality level than experience which has involved fewer or less varied problems, questions or issues; experience which has involved matters affecting the transportation industry in general will ordinarily be evaluated at a higher quality level than experience which has involved a single segment of the industry or otherwise had limited industry impact;

(2) *Knowledge of transportation industry practices:* Experience which has involved a high degree of judgment in the application of knowledge of transportation industry practices, customs and competitive conditions and similar situations and activities will ordinarily be evaluated at a higher quality level than experience which required a lesser degree of such judgment or, a narrower range of industry knowledges;

(3) *Breadth of knowledge of transportation regulations:* Experience which has re-

quired an extensive knowledge of State and local regulatory controls and policies as well as Federal controls will ordinarily be evaluated at a higher quality level than experience which required limited knowledge of such regulatory areas;

(4) *Ingenuity, resourcefulness:* Experience which demonstrated the use of a high degree of initiative, resourcefulness and ingenuity in searching for facts, highlighting basic issues, appraising legal and policy issues, analyzing proposals, and similar activities, will ordinarily be evaluated at a higher quality level than experience which did not demonstrate the use of such qualities to that extent, or demonstrated the use of such qualities in less varied matters;

(5) *Ability to meet and deal with others:* Experience which has demonstrated the ability to establish effective personal contact within and outside the agency, and has required a high degree of responsibility and skill in persuading others to a course of action or recommending action to be taken by others, will ordinarily be evaluated at a higher quality level than experience which did not require such person-to-person relationship, or experience which required a lesser degree of responsibility and skill in persuasion, recommendation, or action;

(6) *Analytical ability:* Experience which has required the independent and intensive analysis of facts and problems, the difficult identification of legal and policy issues, and the reaching of conclusions when directly applicable guides and precedents are unavailable, will ordinarily be evaluated at a higher quality level than experience which has required less independent or less intensive analysis, or has involved less difficult problems of identifying issues, or has involved more and directly applicable guides and precedents.

(7) *Decisionmaking ability:* Experience which has demonstrated ability to evaluate complex facts, form conclusions, and present recommendations which are logical, well-reasoned, and in keeping with policy and legal guides, will ordinarily be evaluated at a higher quality level than experience which required evaluations of, conclusions and recommendations on, less complex facts, or did not require the formulation of firm conclusions or the making of formal recommendations;

(8) *Ability to write and speak effectively:* Experience which has demonstrated a high degree of skill in clear and effective oral and written forms of expression will ordinarily be evaluated at a higher quality level than experience which demonstrated this ability to a lesser degree or in limited circumstances.

Additional materials that are useful in preparing guides for determining what to evaluate in appraising candidates for inservice placement may be found in the Position Classification Standard for the Transportation Industry Analysis Series, GS–2110; and the "Supervisory Grade-Evaluation Guide, Part II."

Materials that are useful in preparing guides for methods of measurement for inservice placement may be found in FPM Supplement 335–1; in the qualification standard for "Supervisory Positions in General Schedule Occupations", Part III of this Handbook; and in various evaluation guides accompanying qualification standards for positions in related occupations.

PHYSICAL REQUIREMENTS

See Part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

TRAFFIC MANAGEMENT SERIES [1]

For positions in the Traffic Management occupation GS–2130 grades GS–5/15

Traffic Manager

Traffic Management Specialist

Supervisory Traffic Management Specialist

DESCRIPTION OF WORK

Traffic managers are responsible for developing policies and plans for the management of traffic programs or for planning, directing, coordinating and controlling traffic operations, to obtain economical and efficient transportation of freight and/or passengers by common or other carrier and other transportation carrier services.

Traffic management specialists and *supervisory traffic management specialists* are responsible for performing or supervising the performance of various assignments associated with planning and developing traffic management programs, formulating traffic management policies, establishing operating requirements, evaluating programs and operations, conducting special studies, furnishing technical traffic management advisory services, and similar kinds of activities.

EXPERIENCE REQUIREMENTS

Except for the substitution of education provided for below, applicants must have had experience of the kind and in the amounts shown in the table below:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–5	3	0	3
GS–7	3	1	4
GS–9	3	2	5
GS–11 and above	3	3	6

General experience

General experience includes experience which has provided a general knowledge and understanding of administrative, professional, analytical or other work related to traffic or transportation programs or operations; and which has demonstrated ability to deal satisfactorily with others. Such experience may have been gained in transportation regulatory work; commodity classification work; rate negotiation work; traffic studies and analyses; auditing of transportation charges; supervising the transportation operations of a field installation; procurement or purchasing when transportation costs are an important consideration in determining sources of supply; management analyses or statistical analyses in a traffic or transportation organization; or in similar activities.

Specialized experience

Specialized experience is progressively responsible experience which demonstrates the following knowledges, abilities, and skills.

For positions at grade GS–7:

(1) Knowledge of special requirements of moving freight, passengers, and other kinds of traffic;

(2) Knowledge of factors entering into determination of transportation rates and operating costs;

(3) Knowledge of construction, application and interpretation of carrier tariffs and related rating and routing guides;

(4) The experience described above must have demonstrated ability to maintain effective relationships with others.

For positions at grades GS–9 and above: In addition to the knowledges, skills and abilities described for GS–7 above:

(1) Knowledge of the principles of traffic management, and those general management principles having special application to traffic and transportation operations;

(2) Knowledge of operations, competitive practices, organization, and technical capabilities of common and other carriers;

(3) Knowledge of technological developments in traffic management and in transportation and related areas, particularly

[1] This standard supersedes the standard for this series that was issued in December 1968.

in equipment, facilities, safety, and other features;

(4) Knowledge of services, transportation potential, geographic scope, and relative efficiency of air, water, motor, rail, and/or other transportation modes;

(5) Knowledge of applicable Federal, State, and local laws and regulations concerning transportation and traffic operations;

(6) Ability to study and analyze problems involved in traffic management operations and programs, and to propose solutions based on sound management judgment and technical considerations;

(7) Ability to evaluate current and proposed agency operations and programs to identify traffic management problems and to recommend improvements;

(8) Ability to make effective presentations, both orally and in writing, which are clear, comprehensive, and well reasoned;

(9) In addition, for traffic manager positions and other supervisory positions, the ability to plan, direct, and coordinate traffic programs and operations, and to plan, supervise, and review the work of others.

These knowledges, abilities and skills may have been acquired in work such as the following:

(1) Managing or participating in managing a transportation or traffic program involving operating a transport or traffic system to move passengers or commodities of an organization when there is accountability for operating costs;

(2) Managing or participating in managing a transportation operations program involving operating a transportation system to provide common carrier types of services to shippers;

(3) Managing or participating in managing a traffic program procuring common or other carrier and other transportation services to move an organization's personnel, freight, and/or other commodities;

(4) Conducting or participating in conducting surveys and studies of the traffic management function, operating methods, procedures, and performance including the determination and analysis of the utilization of transportation services and recommendation of changes to overcome uneconomical or inefficient utilization;

(5) Making presentations on traffic matters before Federal, State or local regulatory bodies;

(6) Loss and damage prevention work when this included responsibilities such as policy and procedure formulation and studies of traffic operations and services, for loss and damage prevention reasons;

(7) Negotiations with carriers and/or regulatory bodies on questions of rates, transit privileges and charges, special services and charges therefor, and classification of commodities;

(8) Advisory service involving commodity analysis from the transportation standpoint, including providing advice on the transportation characteristics of the commodities;

(9) Kinds of work described under "General experience" may be credited for not more than 2 years of specialized experience provided there is clear evidence that such work required or involved the knowledge and application of traffic management principles and procedures, and responsibility for operating and transportation costs, and that the candidate otherwise demonstrates the ability or a definite potential to perform competently the duties of the position for which he is being considered.

SELECTIVE CERTIFICATION

Some positions in this occupation may require specialized knowledge of or experience in particular transportation modes, such as rail, air, water, motor, or others, or in particular kinds of traffic, such as freight or passengers. Selective certification may be requested for positions of this kind.

TRAFFIC MANAGEMENT SERIES

SUPERVISORY POSITIONS

For supervisory positions, see the qualification standard for Supervisory Positions in General Schedule Occupations, in part III of this handbook.

QUALITY OF EXPERIENCE

For eligibility at grades → GS–7 ← through GS–11 at least six months of the required specialized experience must have been at a level of difficulty comparable to that of the next lower grade level, or at least one year must have been comparable to the second lower grade level in the Federal service. At grades GS–12 and above at least one year of the required specialized experience must have been at a level of difficulty comparable to the next lower grade in the Federal service.

SUBSTITUTION OF EDUCATION FOR EXPERIENCE

(1) a. Study successfully completed in a residence college or university may be substituted for required general experience at the rate of one year of education for nine months of experience, provided such study included at least six semester hours (or equivalent) per year in such courses as transportation or traffic management, economics, business administration, accounting, finance, or statistics.

b. Successful completion of traffic management or other appropriate transportation courses in a residence school above high school level may be substituted for general experience on the basis of 24 semester hours (or equivalent) of such study for one year of required general experience.

c. Possession of a certificate as Certified Member, American Society of Traffic and Transportation may be substituted for all of the general experience requirements at the GS–5 level.

(2) Full-time[1] graduate education may be substituted for experience on the following basis. The education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he is being considered.

a. *For one year of specialized experience*—One full academic year of graduate education in traffic management or directly related subjects. (This amount and kind of education meets all the requirements for grade GS–7.)

b. *For two years of specialized experience*—Completion of all requirements for a master's or an equivalent degree, or two full academic years of graduate education, which is in traffic management or directly related subjects. (This amount and kind of education meets all the requirements for grade GS–9.)

(3) *Superior academic achievement.*—The Superior Academic Achievement Standard in section III of Part II, Instructions to Users, of this handbook, is applicable at grade GS–7.

[1] Part-time graduate education is also accepted at the rate of 30 semester hours (or the equivalent) for one year of specialized experience.

WRITTEN TEST

For competitive appointments, a written test is required for grades GS–5 and GS–7, but not at higher levels. For inservice placement actions at grades GS–5 and GS–7, the test may be used, in combination with other evaluation methods, as one element in ranking employees for reassignment into or promotion within this occupation. (See *FPM Supplement 335–1, Evaluation of Employees for Promotion and Internal Placement*, especially Appendix A, Guidelines for Use of Written Tests.) The written test may not be waived for appointments outside the register.

BASIS OF RATING

Applicants for positions at grades GS–5 and GS–7 will be rated on a scale of 100 based on their scores on the written test.

Applicants for grades above GS–7 are rated on a scale of 100 based on an evaluation of the kind, amount, and pertinence of qualifying experience. Ratings will be based on statements in the application form and any additional evidence received by the Commission.

INTERVEIW

A preemployment interview may be required to determine that applicants possess the personal characteristics necessary for successful performance of the work.

PHYSICAL REQUIREMENTS

See Part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

GUIDES FOR EVALUATING CANDIDATES FOR INSERVICE PLACEMENT ACTIONS

Suggestions on what to look for in evaluating candidates

Guides such as the following are useful in determining the elements on which candidates will be evaluated:

(1) Experience in traffic management work in the transportation mode or kind of traffic specialization directly related to the position to be filled will ordinarily be evaluated at a higher quality level than experience in other modes or other kinds of traffic;

(2) Experience which involved traffic movements into several geographic rate territories should ordinarily be evaluated at a higher quality level than experience which involved movements into a single or a few rate territories;

(3) Experience which required the knowledge and use of various technical traffic services such as transit, protective, and special services involved in movements should ordinarily be evaluated at a higher quality level than experience requiring knowledge and use of less varied services;

(4) Experience which involved nonrecurring movements to a variety of geographic destinations should ordinarily be evaluated at a higher quality level than those which involved more restricted geographic coverage;

(5) Experience which required the direction and coordination of, or participation in the direction and coordination of the full range of traffic management functions including program planning, technical advisory services, carrier negotiations, traffic studies and analyses, and recommendations for litigation, will ordinarily be evaluated at a higher quality level than experience which involved direction and coordination of, or participation in the direction and coordination of, fewer traffic management functions;

(6) Experience which involved supervision or performance of technical studies and analyses relating to broad and complex problems of traffic management programs and operations will ordinarily be evaluated at a higher quality level than experience relating to narrower and less difficult problems in these areas;

(7) Experience which involved negotiation with carriers for purposes of securing more favorable rates, charges, or services on an agencywide basis will ordinarily be evaluated at a higher quality level than experience which involved negotiations on individual shipments or traffic movements;

(8) Experience of candidates who possess a certificate as Certified Member, American Society of Traffic and Transportation will ordinarily be evaluated at a higher level than experience of candidates without such a certificate.

Additional material useful in developing guides for identifying elements for evaluating candidates may be found in such publications as the position-classification standard for the traffic management occupation, GS–2130; and

the Supervisory Grade-Evaluation Guide, Part II.

Suggestions for methods of measurement in evaluating candidates

Materials useful in developing guides for methods of measurement in evaluating candidates may be found in appendix A of this handbook; the standard for "Supervisory Positions in General Schedule Occupations," also in this handbook; methods of measurement described in qualification standards for positions in related occupations; and similar publications.

FREIGHT RATE SERIES **GS–2131**
(p. 1)

Freight Rate Assistant GS–4/6

Freight Rate Specialist GS–7/12

Freight Classification Assistant GS–4/6

Freight Classification Specialist GS–7/12

Experience, training, and other requirements

Except for the substitution of education provided for below, applicants for these positions must have had, as a minimum, general and specialized experience of the length specified in the table immediately below, and of the nature as described in the statements following.

Grade	General (years)	Specialized (years)	Total (years)
GS–4	2	None	2
GS–5	3	None	3
GS–6	3	½	3½
GS–7	3	1	4
GS–8	3	1½	4½
GS–9	3	2	5
GS–10	3	2½	5½
GS–11, 12	3	3	6

General experience

Experience which required the ability to perform with a relatively high degree of accuracy and practical judgment such tasks as preparation, analysis, classification, or use of data or reports, or similar clerical or administrative work. All experience, except for 1 year which may have been general office clerical experience, must have been in general traffic or transportation work which required application of practical knowledge in the use, operation, cost, or regulation of transportation. This knowledge may have been gained in a variety of functional operations connected with the movement of freight by one or more of the major modes of transportation.

Specialized experience

1. For *Freight Classification Assistant*
Freight Classification Specialist

Experience which required (1) the determination of appropriate classifications for various items and commodities in accordance with published classification guides; or the collection and development of classification information to be used as testimony for presentation of formal and informal cases before transportation regulatory agencies or courts for the purpose of obtaining the most equitable freight rate; or (2) study and analysis of transportation characteristics of items and commodities shipped in commercial channels, such as dimensions, weight, material from which made, volume of traffic, risk, method of packing and protection, etc.

2. For *Freight Rate Assistant*
Freight Rate Specialist

Experience which required the classification of commodities, and the determination or quotation of complete freight rate and applicable routes, including charges for accessorial services, to be applied to movement of freight via common and contract carriers, or in the examination and audit of claims for overcharge or undercharge arising from freight movement by such carriers, when such work required the reading, interpretation, and application of local and joint freight rate and routing tariffs, special tariffs, classification guides, regulations, decisions of Courts and of Federal and State regulatory agencies. This experience may have been gained in industrial, commercial, or governmental traffic organizations, in the General Accounting Office, in traffic or accounting departments of carriers, or in governmental transportation regulatory agencies.

Quality of experience

The experience must clearly demonstrate the applicant's ability to perform fully the duties of the position for which he is being considered.

Specifically, for grades GS–4 and 5 at least 6 months of *General* or *Specialized* experience must have been gained at a level of difficulty comparable to that of the next lower grade, or 1 year at a level comparable to the second lower grade in the Federal service. For grades GS–6 through GS–11, applicants must show either 6 months of *Specialized* experience at a level of difficulty and responsibility comparable to the next lower grade, or 1 year of *Specialized* experience at a level comparable to the second lower grade in the Federal service. Applicants

for grade GS–12 must have had at least 1 year of *Specialized* experience at a level comparable to the next lower grade level in the Federal service.

The breadth and scope of the applicant's experience in performance of general and specific freight rate and traffic work will determine the grade for which he is qualified. Among the factors involved in making this determination are:

(a) Nature and variety of commodities involved.
(b) Number and variety of modes of transportation involved.
(c) Number and nature of freight traffic services with which familiar.
(d) Responsibility for final actions or decisions.

Supervisory positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

Substitution of education

Except as provided for in the note below, education may be substituted for *General* experience as follows:

1. Study successfully completed in a residence college or university may be substituted for experience at the rate of 1 year of study for 9 months of experience, provided that such study included an average of 6 semester hours (or equivalent) a year in transportation or traffic management, economics, business administration, accounting, finance, statistics, or related subjects.

2. Successful completion of each 24 semester hours (or equivalent) of resident transportation course work in a school above high school level specializing in transportation may be substituted for 1 year of experience.

Special qualifications requirements

Some positions may require specialization of a high degree in a particular aspect of transportation service or with a particular commodity area. Appointment to these positions may be restricted to eligibles who show a sufficient amount of experience with and knowledge of such specializations to perform the duties of the particular positions.

→*Basis of rating*

No written test is required. For all grade levels, applicants who meet the minimum qualification requirements will be rated on a scale of 70 to 100 based on an evaluation of the quality and extent of the applicant's experience, education, training, or other achievements pertinent to the duties of the position to be filled.

For inservice placement actions at any grade the basis of rating is established by the agency in accordance with FPM Supplement 335–1.

Physical requirements

Applicants must be physically and mentally able to safely and efficiently perform the essential functions of the position. Usable vision is required and, depending on the essential duties of a specific position, usable hearing or speech may be required. However, in most cases, a specific physical condition or impairment other than complete loss of vision will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform. Reasonable accommodation may include, but is not limited to: Job modification, provision of assistive devices, and/or job restructuring. ←

Travel Clerk, GS-4/6
Travel Assistant, GS-7/11
Supervisory Travel Assistant, GS-5/11

Description of work

Travel clerks and assistants perform travel services or make complete arrangements for travel of persons, individually or in groups, within, to, from, and between the United States, its territories, and foreign countries. The work is performed in accordance with governing regulations and involves the determination of legal entitlement or authorization to travel; the issuance of transportation and related requests; the planning of itineraries; the securing of tickets and reservations; the reviewing of travel and related documents; the giving of advice on travel regulations and procedures; and similar duties. The work requires (1) knowledge of (a) the substance, intent, coverage, and limitations of travel and related regulations, and (b) carrier lines, equipment, passenger services, terminal and connecting facilities, current routes and comparative fares pertaining to various modes of transportation; (2) the ability to interpret guides and regulations intelligently in terms of the transportation required and to exercise judgment in applying them correctly to the travel situations involved; and (3) tact, courtesy, and capacity for effective personal contacts.

Experience, training and other requirements

Except for the substitution of education provided for below, applicants for these positions must have had, as a minimum, general and specialized experience of the length specified in the table immediately below, and of the nature as described in the statements following:

Grades	General experience (years)	Specialized experience (years)	Total experience (years)
GS-4	1	1	2
GS-5	1	2	3
GS-6	1	2½	3½
GS-7	1	3	4
GS-8	1	3½	4½
GS-9	1	4	5
GS-10	1	4½	5½
GS-11	1	5	6

A. *General Experience*

Experience in general clerical work, preferably in work which has demonstrated the ability to apply guides, instructions, regulations and procedures, in the performance of clerical processing, recording, control, review or other such duties.

B. *Specialized Experience*

Experience which has required interpretation and application of travel regulations and carrier schedules and guides. This experience may have been gained in commercial or governmental travel or transportation organizations, or in tour or travel departments of carriers, or in a variety of travel operations connected with the movement of persons by one or more of the major modes of transportation. Specifically, the experience must have included:

For Travel Clerk, GS-4: Experience such as that which required the verification of entitlement or authorization for travel; issuance of transportation documents; securing of tickets or reservations; checking travel documents for agreement with basic authorization; estimating and computing travel and cost-of-living expenses; or related types of travel work.

For Travel Clerk, GS-5 and GS-6, and Travel Assistant, GS-7 (and above): Experience which required the planning of itineraries, selection of modes, and routing of travelers to destination, individually or in groups, via common and contract carriers, and related travel arrangements. For positions at GS-6 the specialized experience must have included at least 6 months of experience, and for GS-7 (and above), at least 1 year of experience in making complete travel arrangements for travel to foreign areas, e.g., Europe; the Middle East; Africa; the Far East; South America; etc.

Excess Specialized Experience may be substituted for *General Experience*.

C. *Quality of Experience*

The experience must clearly demonstrate the applicant's ability to perform fully the duties of the position for which he is being considered.

June 1962

Reprinted without change
December 1975 (TS 156)

Specifically, for grade GS–4, at least 6 months of general experience (or 6 months of specialized experience which is being substituted for general experience) must have been gained at a level not lower than that of the next lower grade. For grades GS–5 through GS–11, applicants must show either 6 months of specialized experience at a level of difficulty and responsibility comparable to the next lower grade in the Federal service or 1 year at a level comparable to the second lower grade in the Federal service.

The length, breadth, and scope of the applicant's experience in travel work will determine the grade for which he is qualified.

D. *Supervisory positions*

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

E. *Substitution of Education for Experience*

Education may be substituted for a maximum of 3 years of *experience* as follows:

(1) Study successfully completed in a residence college or university may be substituted for *general experience* at the rate of 1 year of study for 9 months of experience;

(2) Study successfully completed in a residence college or university may be substituted for *specialized experience* at the rate of 1 year of study for 9 months of experience provided that study included an average of 6 semester hours (or equivalent) a year in transportation or traffic management, economics, business administration, accounting, finance, statistics, or related subjects. (Substitution under this item may not be made at grades GS–6 and GS–7 for that kind of specialized experience required in foreign travel arrangements.)

F. *Written Tests and Basis of Rating*

All applicants for nonsupervisory positions at GS–4, and for supervisory positions at the GS–5 and GS–6 levels, must pass appropriate written tests. Competitors for positions at these levels will be rated on the test results. Competitors for nonsupervisory positions at GS–5 and above and for supervisory positions at GS–7 and above, will not be required to pass written tests but will be rated on their experience and training.

The written tests may be waived for all noncompetitive actions, but not for appointments outside the register.

Physical requirements

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

Passenger Rate Assistant GS-4/6

Passenger Rate Specialist GS-7/13

Supervisory Passenger Rate Specialist GS-7/13

Description of work

Passenger rate assistants and specialists determine the most economical legal and lawful rates and applicable routes for the transportation of persons, individually or in groups, within, to, from, and between the United States, its territories, and foreign countries. The determinations are made in accordance with published tariffs and require study and consideration of suitability of specific routes, classes of accommodations, carrier equipment requirements and other factors, and special services.

These determinations require study and consideration of decisions of the courts, Federal and State regulatory agencies, and the Comptroller General of the United States. Some positions also include the examination of payments to carriers in the pre-audit or post-audit of passenger transportation bills (the adjudication and settlement of transportation claims by and against the United States) and the reporting of passenger transportation management errors committed by Government agencies.

Experience requirements

Except for the substitution of education provided for below, applicants for these positions must have had progressively responsible experience in the types and amounts shown in the table below, and of the nature described in the statements immediately following:

Grades	General experience (years)	Specialized experience (years)	Total experience (years)
GS-4	2	None	2
GS-5	3	None	3
GS-6	3	½	3½
GS-7	3	1	4
GS-8	3	1½	4½
GS-9	3	2	5
GS-10	3	2½	5½
GS-11 and above	3	3	6

General experience

Experience which required the ability to perform with a relatively high degree of accuracy and practical judgment such tasks as preparation, analysis, classification, or use of data or reports, or similar clerical or administrative work. All experience, except for 1 year which may have been general office clerical experience, must have been in general traffic or transportation work which required application of practical knowledge in the use, operation, cost, or regulation of transportation. This knowledge may have been gained in a variety of functional operations connected with the movement of persons by one or more of the major modes of transportation.

Specialized experience

Experience which required (a) the determination of rates and applicable routes (including charges for special services) to be applied to movement of persons individually or in groups, via common and contract carriers, or (b) the examination and audit of bills, or of claims for overcharge or undercharge, arising from passenger movement by such carriers. Such work must have required technical knowledge, interpretation and application of local and joint passenger rate and routing tariffs, special tariffs, regulations, and decisions of Courts and of Federal and State regulatory agencies. This experience may have been gained in industrial, commercial, or governmental traffic organizations, in the General Accounting Office, in traffic or accounting departments of carriers or carrier associations, or in governmental transportation regulatory agencies.

Excess Specialized Experience may be substituted for *General Experience.*

Quality of experience

For eligibility at grades GS-4 and GS-5, at least 6 months of experience must have been gained at a level of difficulty not lower than that of the next lower grade or 1 year at a level comparable to the second lower grade in the Federal service. For grades GS-6 through GS-11, applicants must show either 6 months of specialized experience at a level of difficulty and responsibility comparable to the

next lower grade, or 1 year of specialized experience at a level comparable to the second lower grade in the Federal service. Applicants for grades GS–12 and above must have had at least 1 year of specialized experience at a level comparable to the next lower grade level in the Federal service.

The length, breadth, and scope of the applicant's experience in performance of general and specific passenger transportation work will determine the grade for which he is qualified. Among the factors which will be considered in making this determination are:

(a) Size of geographic areas his experience has involved;
(b) Variety of modes of passenger transportation his work has involved;
(c) Nature and variety of passenger transportation services with which his experience has made him familiar.
(d) Degree of his responsibility for final actions or decisions.

Supervisory positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

Substitution of education

Except as provided for below under "Special Qualification Requirements," education may be substituted for *General Experience* as follows:

(1) Study successfully completed in a residence college or university may be substituted for experience at the rate of 1 year of study for 9 months of experience, provided that study included an average of six semester hours (or equivalent) a year in transportation or traffic management, economics, business administration, accounting, finance, statistics, of related subjects.
(2) Successful completion of each twenty-four semester hours (or equivalent) or transportation course work in a residence school above high school level specializing in transportation may be substituted for 1 year of experience.

Special qualification requirements

Some positions may require a high degree of specialization in a particular aspect of passenger transportation. Appointment to these positions may be restricted to eligibles who show a sufficient amount of experience in and knowledge of such specialized aspect to perform the duties of the particular positions.

→ *Basis of rating*

No written test is required. For all grade levels, applicants who meet the minimum qualification requirements will be rated on a scale of 70 to 100 based on an evaluation of the quality and extent of the applicant's experience, education, training, or other achievements pertinent to the duties of the position to be filled.

For inservice placement actions at any grade the basis of rating is established by the agency in accordance with FPM Supplement 335–1.

Physical requirements

Applicants must be physically and mentally able to safely and efficiently perform the essential functions of the position. Usable vision is required and, depending on the essential duties of a specific position, usable hearing or speech may be required. However, in most cases, a specific physical condition or impairment other than complete loss of vision will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform. Reasonable accommodation may include, but is not limited to: Job modification, provision of assistive devices, and/or job restructuring.←

SHIPMENT CLERICAL AND ASSISTANCE SERIES **GS–2134**
(p. 1)

Shipment Clerk, GS–4/5
Shipment Assistant, GS–6 and above
Lead Shipment Clerk, GS–5/6
Lead Shipment Assistant, GS–7 and above
Supervisory Shipment Clerk, GS–5 and above
Supervisory Shipment Assistant, GS–7 and above

DESCRIPTION OF WORK

This series includes supervisory and nonsupervisory positions which require a practical knowledge of clerical or technical duties involved in shipping or storing freight or personal property by commercial or Government means. Such duties are concerned with preshipment, shipment, or postshipment responsibilities, e.g., arrange for shipment of goods, parcels, printed matter, etc.; determine extent of personal property shipment and storage entitlements at Government expense; arrange for storage, pickup, delivery, and other ancillary services required for shipments; prepare and process shipment and/or storage documents, records, receipts, manifests, etc., for shipping and receiving points; maintain and update shipment and storage records or record control systems; and/or coordinate shipment scheduling, expediting, delaying, or other disposition. The duties do not require technical knowledge inherent in or associated with the analysis or interpretation of transportation tariffs, classification, or rate structures.

For further information about the nature of the work performed by employees in this series, see the position classification standard. The criteria in the classification standard and the benchmark descriptions should be helpful in evaluating the level of experience a candidate has gained outside of the Federal Government or in positions outside the General Schedule.

MINIMUM EXPERIENCE REQUIREMENTS

Minimum time requirements have been established in this standard for positions GS–4 and above. The minimum experience requirement insures that each applicant will have a period of time to both develop and demonstrate the required knowledges and skills and gives the employing agency minimum assurance that the applicant can do the work of the position. However, the kind and level of this experience must have demonstrated possession of the required kinds and qualities of knowledges and skills. Note: For positions below GS–4, use the qualification standard for Clerk (various positions), GS–1/3, in the General Administrative, Clerical, and Office Services Group, GS–300.

Requirements for GS–4

Applicants must have one year of satisfactory experience performing less complex procedural clerical duties of GS–3 or equivalent positions which demonstrated possession of the following:

1. Knowledge of basic clerical procedures and requirements and skill sufficient to initiate commonly-used freight, personal property shipment, or storage documents and forms and to process completed shipment or storage transaction paperwork;
2. Knowledge and skill sufficient to read, understand, and apply various oral instructions and written guides, permitting limited discretion to locate and select the one most appropriate and directly applicable to work assignments;
3. Knowledge of record control systems and skill sufficient to complete, process, and control various documents and records for different work situations;
4. Knowledge of shipment documents and their purposes and skill sufficient to make decisions regarding the filling in of coded and annotated information on documents and records as well as computing, sorting, distributing, receipting, posting, tracing, and other clerical functions; and
5. Skill in handling or processing work under pressure to meet deadlines.

Such knowledges and skills may be demonstrated by clerical work experience in shipping or storage of freight or personal property, transportation of commodities, or other closely related areas.

Requirements for GS–5

Applicants must have one year of satisfactory experience in complex procedural or less complex substantive clerical duties of GS–4 or equivalent positions that demonstrated possession of the following:

1. Knowlege of standard operating practices and skill sufficient to perform various clerical operations and control procedures involved in transacting recurring arrangements and controls for shipping or storing freight or personal property;
2. Knowledge of standard clerical work and skill sufficient to read, understand, and apply standard shipment regulations to locate and select those which are most applicable in assignments and make minor deviations when some details may be lacking;
3. Knowledge of standard shipment or storage transactions and skills sufficient to effect the movement of commodities authorized by standing route order, review and process personal property shipment applications, arrange and effect the storage of personal property or freight, monitor shipment and/or storage vouchers and invoices or the like;
4. Knowledge of standard shipment or storage arrangements regarding shipment consolidation, carrier selection when none is indicated, priority changes, required delivery dates, appropriate shipping documents, carrier pickup and delivery arrangements, or entitlements and skill sufficient to ship or store at Government expense or other actions, as well as to effect specific shipment or storage results and accountability; and
5. Skill in working under pressure to meet deadlines, priorities, and new or unusual requirements.

Requirements for GS–6

Applicants must have one year of satisfactory experience with complex substantive clerical or technical duties at GS–5 or equivalent positions that demonstrate possession of knowledge and skill sufficient to make decisions regarding:

1. Availability of through routes, carrier operating rights, comparability of approximate costs, relative priority of shipment, and need for special handling equipment for either a large variety of general freight shipments which regularly contain explosives, other dangerous articles, or special security-risk material; or
2. A large variety of personal property shipment needs and services desired; shipments which regularly contain special storage privileges, conditions, and restrictions at new duty stations; and situations which may generate excess costs or limits on the services provided, depending upon the nature of the orders held by the property owners.

PHYSICAL REQUIREMENTS—ALL LEVELS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation also may be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

SUPERVISORY POSITIONS

Use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X–118 in conjunction with this standard.

BASIS OF RATING

All candidates will be rated on a scale of 70 to 100. The basis of rating will be an evaluation of a candidate's experience, education, and training in relation to the duties of the position to be filled. Work experience and relevant course work above the minimum required for a particular position at a particular grade level will be considered in ranking qualified applicants, based on the relatedness of the work experience or training courses to the position's required knowledges and skills. Rating will be based on statements in the application form, any supplemental information forms, and any additional evidence received by the examining office. A written test is not required.

CARGO SCHEDULING SERIES

Cargo Scheduler GS–5/9
Supervisory Cargo Scheduler GS–9/12

Description of work

Cargo schedulers control or schedule the movement of cargo into, out of, or through one or more terminals in the proper amounts and time sequence in relationship to the terminals' ability to accommodate the cargo and/or the carriers' ability to move the cargo. The duties involve the technical analysis of the transportation considerations which affect the movement of cargo in the proper relationship to the terminal and carrier capacity. Extensive knowledge of transportation systems, transportation rules and regulations and priority system, is required, but technical knowledge of freight classification and of common carriers' rates is not required.

Experience, training, and related requirements

Except for the substitution provided for below, applicants must have had the amount of general and specialized experience indicated below and of the type and quality described in the paragraphs following:

Grade	General experience (years)	Specialized experience (years)	Total experience (years)
GS–5	3	0	3
GS–6	3	½	3½
GS–7	3	1	4
GS–8	3	1½	4½
GS–9	3	2	5
GS–10	3	2½	5½
GS–11/12	3	3	6

General experience is progressively responsible experience in the field of transportation which requires a general knowledge of transportation matters such as schedules, routes, bills of lading, manifests, classification of commodities, packaging and preservation, loss and damage prevention, transit privileges, rates, demurrage charges, diversions of shipments, handling costs, etc. Experience of a routine clerical nature is not qualifying.

Specialized experience is responsible experience in the scheduling of the movement of cargo into or through one or more freight terminals in the appropriate amounts in order to balance the flow with the terminals' capacity to accommodate the freight and the carriers' capacity to transport the cargo.

→*Supervisory positions*

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

Substitution of education

Education may be substituted for general experience as follows:

1. Study successfully completed in a residence college or university may be substituted for experience at the rate of 1 year of study for 9 months of experience provided that such study included an average of 6 semester hours (or equivalent) a year in transportation or traffic management, economics, business administration, accounting, finance, statistics, or related subjects.

2. Successful completion of each 24 semester hours (or the equivalent) in a residence school above high school level specializing in transportation may be substituted for 1 year of experience.

Written test

Applicants for positions at grades GS–5/7 must pass an appropriate written test. Provided there is other adequate evidence of the applicant's ability this test may be waived for noncompetitive actions but not for appointments outside the register.

Physical requirements

See part II, Physical Requirements, paragraph 3; in addition, applicants must possess emotional and mental stability.

TRANSPORTATION OPERATIONS SERIES

Automotive Transportation Administrator, GS–11

Applicants must have had both (a) and (b) below:

(a) Three years of progressively responsible experience in performance of maintenance, administrative, or supervisory functions in the automotive transportation field; *and*

(b) Three years of responsible administrative experience in the maintenance, retailing, or purchasing of automotive transportation equipment, or in the operation of a commercial motor vehicle facility. This experience must have demonstrated the applicant's knowledge of the maintenance, planning, and assignment functions incident to the operation of a fleet of motor vehicles; a familiarity with municipal and state regulations governing the use of automotive vehicles; and a working knowledge of commercial practices in the procurement of automotive equipment and accessories, and the maintenance of inventories and cost computations thereon.

Substitution: Education successfully completed in a school or institution above high-school level which has included a minimum of 20 semester hours in mechanical engineering, or 300 class hours in motor mechanics per year, may be substituted for the experience specified in (a) above at the rate of 1 year of education for 9 months of experience. No substitution will be allowed for experience required in (b) above.

See part 2, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability. (April 1953)

Automotive Transportation Specialist, GS–9

Applicants must have had a minimum of 5 years of progressively responsible experience in the automotive transportation field, 2 years of which must have involved supervisory or administrative direction over the maintenance and operation of a small fleet (10 or more vehicles) of automotive equipment. This experience must have demonstrated the applicant's knowledge of modern maintenance and repair shops, and management control over the operation of the various vehicles comprising the fleet.

Substitution: Education successfully completed in a school or institution above high-school level which has included a minimum of 20 semester hours in mechanical engineering, or 300 class hours in motor mechanics per year, may be substituted for the general experience specified above at the rate of 1 year of education for 9 months of experience. No substitution will be allowed for the supervisory or administrative experience requirements.

See part 2, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability. (April 1953)

Motor Vehicle Dispatcher GS-2/5
Automotive Equipment Dispatcher GS-3/7

Description of work

Motor vehicle dispatchers assign trucks and passenger vehicles to travel specific routes or to accomplish specific purposes; keep records and reports on gas and oil usage, mileage, repairs, etc.; and provide route and destination information and instructions.

Automotive equipment dispatchers assign (in addition to trucks and passenger vehicles) specialized automotive equipment, such as construction equipment or materials handling equipment, to accomplish specific purposes.

Experience, training, and related requirements

For grades GS-2 and GS-3 applicants must meet the requirements set forth for these grade levels in the X-118 qualification standard for Clerk GS-300-1/3; or for each grade applicants must have had progressively responsible experience in the types and amounts shown in the table below:

Grade	Total experience (years)	General experience (years)	Specialized experience (years)
GS-2	½	½	0
GS-3	1	½	½
GS-4	2	1	1
GS-5	3	1	2
GS-6	3½	1	2½
GS-7	4	1	3

General experience

Clerical or other experience which required familiarity with the scheduling, assignment, records, maintenance, routing, *or* operation of motor vehicles in open street or highway traffic. In order to be qualifying, experience in the operation of motor vehicles in open street or highway traffic must have involved driving on a substantially full-time basis.

Specialized experience

Experience in dispatching motor vehicles; planning routes of travel for individual trips on open streets and highways; scheduling and assigning motor equipment; preparing reports and maintaining records pertaining to maintenance and repair, gas and oil consumption, mileage data, assignment of vehicles, and delays and causes of delay. Specialized experience may be substituted for general experience.

Substitution of education for experience

Graduation from a 4-year high school course (or possession of a GED high school equivalency certificate) may be substituted in full for the 6 months of general experience required for GS-2 but not for the experience required for other grade levels.

Quality of experience

For all positions at least 6 months of the required experience must have been at a level of difficulty comparable to the next lower grade or 1 year at a level comparable to the second lower grade in the Federal service.

Note: For filling Supervisory Motor Vehicle Dispatcher and Supervisory Automotive Equipment Dispatcher positions, the guide entitled "Supervisors of Work Classifiable at One-Grade Intervals", in Part III of Handbook X-118 may be used.

Basis of rating

No written test is required. The numerical rating will be assigned on a scale of 100, and based on the applicant's total experience and training. The evaluation will be based on the applicant's own statements of experience and training and on additional information obtained by the Commission.

Physical requirements

See part II, Physical Requirements, paragraph 3. In addition, applicants must possess emotional and mental stability.

AIR TRAFFIC CONTROL SERIES[1]

Air Traffic Control Specialist (All Specializations) GS–4/15

DESCRIPTION OF WORK

Air Traffic Control Specialist (Station)

Station specialists provide information about weather, air navigation and airport conditions to pilots before and during flight. They relay traffic control instructions and other information between pilots and air traffic control facilities; provide information to pilots in distress; orient lost pilots; and initiate search and rescue action to locate overdue aircraft.

Air Traffic Control Specialist (Terminal)

Terminal controllers are concerned with controlling aircraft in the vicinity of airports for the purpose of assuring proper separation between aircraft and minimizing delays resulting from traffic congestion. They give traffic control instructions to aircraft operating under visual and instrument flight rules and provide flight assistance to assure safe and expeditious movement of traffic.

Air Traffic Control Specialist (Center)

Center controllers control aircraft operating enroute along the airways for the purpose of assuring proper separation between aircraft and minimizing delays arising from traffic congestion. They issue instructions, clearances, advice, and information to aircraft; maintain a progressive check of aircraft movement; initiate search and rescue action to locate overdue aircraft; and direct the dispersal of aircraft in a military emergency.

Air Traffic Control Specialist (Research and Development)

These positions require air traffic control knowledges and are concerned with managing and conducting programs for the creation, design, and development of new air traffic control systems or concepts; and they analyze, test, and evaluate current or new procedures, methods, systems, or concepts.

Air Traffic Control Specialist

These positions involve the performance of duties which represent a combination of the work described in two or more of the specializations and which require the qualifications of two or more of the specializations; or work which is not included in any of the specializations but which is similar in nature, difficulty and responsibility to the work of this series.

INFORMATION ON EMPLOYMENT

Air traffic control facilities require shift work. Employment in this occupation often involves movement from one geographic location to another.

EXPERIENCE, TRAINING AND RELATED REQUIREMENTS

Except for the substitutions provided for below, applicants must have the following quantity and kind of experience:

For GS–4

Two years of progressively responsible experience in administrative, technical or other work which demonstrated the potential for learning, and performing air traffic control work.

For GS–5

Three years of experience as described above for GS–4.

For GS–7 and above

In addition to meeting the requirements for GS–5, applicants must have *specialized experience* in a military or civilian air traffic facility which demonstrated possession of the knowledges, skills, and abilities required to perform the level of work of the specialization for which application is made.

[1] This standard supersedes the X–118 standard for this series which was issued in January 1964 and December 1967, and the single-agency standard for this series which was issued in July 1963, February 1964, April 1965, and December 1967.

Examples of Specialized Experience

Station: This is experience in providing information to pilots on such matters as weather, air routes, navigational aids and airport conditions before and during flight. In addition to a comprehensive knowledge of such matters, this specialization requires:

- the judgment to select only essential and pertinent information from a great mass of data;
- the skill to present essential information to pilots clearly, concisely and quickly either before or during flight; and
- the ability to act decisively in emergency situations.

Terminal: This is experience in issuing control instructions and advice to pilots in the vicinity of airports to assure proper separation of aircraft and to expedite their safe and efficient movement. In addition to a comprehensive knowledge of air traffic control laws, rules, and regulations, positions in this specialization require:

- the ability to act decisively under stressful situations and to maintain alertness over sustained periods of pressure;
- the skill to coordinate plans and actions with pilots and other controllers;
- the judgment to select and take the safest and most effective course of action from among several available choices.

Center: This is experience in controlling aircraft operating enroute along the airways for the purpose of assuring proper separation and the safe and expeditious movement of such aircraft. In addition to a comprehensive knowledge of the laws, rules and regulations governing air traffic control, positions in this specialization require:

- the ability to control aircraft operating at very high speeds over great distances;
- the skill to arrange air traffic in patterns that assure maximum safety and minimum delay at points where such aircraft are "handed-off" or transferred to other facilities or other sectors within the center;
- the judgment to estimate when and where traffic congestion will build to a point that necessitates changing patterns and to plan accordingly.

Research and Development: This is experience in a terminal, station or center which provided the potential or ability—

- to arrange or conduct programs for the creation, design and development of new air traffic control systems or concepts;
- to analyze, test and evaluate current or new air traffic control procedures, methods, systems or concepts.

Combination Positions: These positions involve the performance of duties which represent a combination of the work in two or more of the specializations and which require the qualifications of two or more of the specializations; or work which is not included in any of the specializations but which is similar in nature, difficulty, and responsibility to the work of this series.

All positions at the full performance levels of each specialization require considerable skill and training in the work of the specialization. Up through grade GS-7, specialized experience in one specialization is fully qualifying for reassignment or promotion into another specialization. At grade GS-9 and above, experience and training in one specialization is qualifying for another specialization if the candidate's total record indicates that he can gain the knowledges, abilities, and skills of the new assignment after a reasonable period of orientation and training.

For all specializations, qualifying specialized experience must have provided candidates with the ability to:

—arrive quickly at well-reasoned solutions to complex problems;
—adjust quickly to different assignments, changing conditions, and workload fluctuations;
—remain calm and controlled during and after long periods of tension and fatigue; and
—speak rapidly, clearly and distinctly.

CERTIFICATE AND RATING REQUIREMENTS

Air traffic control specialists in all specializations are required to possess or obtain a valid Air Traffic Control Specialist Certificate and/or Control Tower Operator Certificate, if appropriate. These certificates require demonstrating knowledge of basic meteorology, basic air navigation, standard air traffic control and communications procedures, the types and uses of aids to air navigation, and regulations governing air traffic.

In addition, each air traffic control specialist must possess or obtain a rating for the facility to which assigned. This facility rating requires demonstration of a knowledge of the kind and location of radio aids to air navigation, the terrain, the landmarks, the communications systems and circuits, and the procedures peculiar to the area covered by the facility.

All required certificates and ratings must be obtained, if not already held, within uniformly applicable time limits established by agency management.

EDUCATIONAL AND OTHER SUBSTITUTIONS FOR EXPERIENCE

Educational substitutions

GS-4: Study completed in an educational institution above the high school level may be substituted on the basis of one year of study for one year of experience.

GS-5: Successful completion of a 4-year college course leading to bachelor's degree may be substituted in full for the experience required at GS-5.

GS-7: Successful completion of one year of graduate study leading to a master's degree may be substituted in full for the experience required at GS-7.

GS-7: The Superior Academic Achievement Standard in part II of this handbook applies to this occupation at grade GS-7.

Other substitutions

GS-7: Applicants who have passed the written test qualify in full for the experience requirements for grade GS-7 if they:

—Hold or have held an appropriate facility rating and have actively controlled air traffic in civilian or military air traffic control terminals or centers;

—Hold or have held an FAA certificate as a dispatcher for an air carrier;

—Hold or have held an instrument flight rating;

—Hold or have held an FAA certificate as a navigator or have been fully qualified as a Navigator/Bombardier in the Armed Forces;

—Have 350 hours of flight time as a copilot or higher and hold or have held a private certificate or equivalent Armed Forces rating;

—Have served as a rated Aerospace Defense Command Intercept Director;

—Meet the requirements for GS-5 and in addition pass the written test with a higher score.

QUALITY OF EXPERIENCE

For each grade creditable experience must have equipped applicants with the knowledges, skills, and abilities to perform fully the duties of the position being sought.

Applicants must demonstrate progressively responsible experience of a scope, quality, and degree such as to have equipped them with the ability to perform duties at the grade level of the position for which application is made. Typically, this is demonstrated by accomplishment of assignments of the difficulty and responsibility described in the position classification standard used to evaluate positions at the next lower grade in the normal line of promotion to the position being filled. (See also 5 C.F.R. 300, Subpart F.)

For each grade, applicants must possess or obtain, within uniformly applicable time limits, the facility ratings required for full performance at the facility where the position is located.

In evaluating the quality of experience for promotion actions, particular attention should

be paid to the provisions of this standard included under the section *Guide for Evaluating Specialized Experience.*

SUPERVISORY POSITIONS

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.

MAXIMUM AGE LIMIT

Under the authority of Public Law 92-297, a maximum age limit has been established for positions in the Terminal and Center specializations in the Department of Transportation. Applicants who have reached their 31st birthday are ineligible for entry into positions in these specializations only. The maximum age limit, which may not be waived, does not apply to positions in the Station specialization.

WRITTEN TEST

Applicants for positions through GS-7 must pass a written test. For positions above grade GS-5, the test score is used as *one* of the elements in the rating of eligibility.

Applicants for positions above grade GS-7 may be required to take a written test. However, at these grades, performance on the test will be used as an aid in evaluation of abilities, and will not be used on a pass-or-fail basis.

BASIS OF RATING

Applicants for grades GS-4 and GS-5 will be rated on a scale of 100 based on their score on the written test.

Applicants for positions at GS-7 will be rated on a scale of 100 based on their score on the written test *and* the kind and quality of their experience, education, and training in relation to the requirements of the positions. Competitors for these grades must pass the test and obtain a rating of at least 70 to be eligible.

Applicants for grades above GS-7 are rated on a scale of 100 based on an evaluation of the kind, amount, pertinence, and recency of qualifying air traffic control experience. If a test is given above grade GS-7 it is not to be used on a pass-or-fail basis, but rather as *one* of the considerations in evaluating candidates.

PERSONAL QUALITIES

In addition to meeting all other requirements, candidates must demonstrate possession of traits and characteristics which are important in air traffic control work. Among such traits are:

(a) Ability to speak distinctly and concisely;
(b) Poise and self-confidence, and ability to remain calm during emergency situations;
(c) Resourcefulness;
(d) Practical intelligence and good judgment;
(e) Alertness; and
(f) Decisiveness.

Applicants who qualify in the written test and/or meet the experience and training requirements will be required to appear for a preemployment interview.

GUIDE FOR EVALUATING SPECIALIZED EXPERIENCE

The value of specialized experience depends upon the degree to which it prepared the applicant to perform the duties of the position to be filled. As a general rule, in filling a terminal position, for example, terminal experience is better qualifying than center or station experience, although either of these may also meet the minimum requirements for the position. Similarly, station experience is usually better qualifying than any other for station positions, and center experience is usually better qualifying than any other for center positions.

More specifically, for a position in a high-density facility, i.e., one that handles a very heavy volume of traffic, successful experience in handling a very heavy volume of traffic is the most pertinent. For example, if the position to be filled is in a high-density radar terminal, then experience in a high-density terminal is more likely to be more valuable than experience in a low-density terminal. This is true because

high-density situations require an exceptional degree of ability to make very rapid decisions for sustained periods of time under very stressful conditions.

Candidates for reassignment and promotion must also be evaluated carefully against the characteristics described under the section of this standard entitled *Personal Qualities*. This evaluation may be made through such methods as personal interviews, study of performance evaluations, and reference checks with supervisors.

OTHER REQUIREMENTS

Persons appointed to positions covered by this standard perform the duties of the position to which assigned and, in addition, receive training for positions at higher grades. At all training and development levels, employees must learn the skills needed for operation at higher levels of responsibility. These are not continuing assignments. Success in training and development positions depends on ability to acquire the knowledges needed at higher levels within reasonable periods of time established for training programs. Failure of persons to pass training requirements for, or to accept promotion to higher grade air traffic control specialist positions may constitute grounds for reassignment, demotion, or separation from employment.

For appointment to positions at facilities which require use of radiotelegraphic equipment, applicants must produce evidence of ability to transmit and receive International Morse Code by hand key or "bug" at a speed of 15 w.p.m.

PHYSICAL REQUIREMENTS

→Before appointment a medical examination will be made by a medical examiner designated by the Regional Flight Surgeon. When appropriate, consultations will be conducted by clinical specialists selected by the Regional Flight Surgeon. Applicants must pay their own expenses in reporting for medical examinations. If they are found ineligible because of physical defects, no part of their expenses in returning home can be paid by the Government.

INITIAL EMPLOYMENT

Applicants for initial appointment to air traffic control specialist positions must comply with the following requirements:

A. Eye

1. The applicant must demonstrate: Distant visual acuity of 20/20 in each eye separately, without correction, or distant visual acuity of 20/200 or better in each eye separately, with correction to 20/20 in each eye. Glasses or contact lenses are permitted.
2. The applicant must demonstrate: Near visual acuity of v=.50 (or equivalent according to table of equivalents scale) or better in each eye separately without correction, or near visual acuity of v=1.25 or better in each eye separately, with correction to v=.50 in each eye. Glasses or contact lenses are permitted.
3. An applicant who must utilize both glasses and contact lenses to demonstrate acceptable near and distant vision is disqualified.
4. The applicant must demonstrate normal color vision.
5. The applicant must demonstrate normal central and peripheral fields of vision.
6. If any medication is routinely required for control of intraocular tension, the applicant is disqualified.
7. The applicant must demonstrate no hyperphoria or hypophoria greater than one prism diopter.
8. The applicant must demonstrate no esophoria greater than six prism diopters.
9. The applicant must demonstrate no exophoria greater than six prism diopters.

10. If examination, including tonometry, of either eye or adnexa reveals any form of glaucoma or cataract formation, uveitis, or any other acute or chronic pathological condition that would be likely to interfere with proper function or likely to progress to that degree, the applicant is disqualified.
11. An applicant under any form of treatment for any chronic disease of either eye is disqualified.
12. The applicant must demonstrate full range of motion of external ocular muscles.

B. *Ear, Nose, Throat, Mouth*

1. Examination must show no outer, middle, or inner ear disease, either acute or chronic, unilateral or bilateral.
2. Examination must show no active disease of either mastoid.
3. Examination must show no unhealed perforation of either eardrum.
4. Examination must show no deformity of either outer ear that might interfere with the use of headphones of the applied or semi-inserted type.
5. Examination must show no disease or deformity of the hard palate, soft palate or tongue that interferes with enunciation. The applicant must demonstrate clearly understandable speech, and an absence of stuttering or stammering.
6. The applicant must demonstrate, by audiometry, no hearing loss in either ear of more than 25 decibels in the 500, 1000, or 2000 HZ ranges and must demonstrate no hearing loss in these ranges of more than 20 decibels in the better ear, using ISO (1964) or ANSI (1969) standards. Hearing loss in either ear of more than 40 decibels in the 4000 HZ range may necessitate an otological consultation. Incipient disease processes which may lead to early hearing loss will be cause for disqualification.

C. *Cardiovascular*

1. An applicant must have no medical history of any form of heart disease. The applicant must demonstrate absence of any form of heart disease to clinical examination including resting and post-exercise electrocardiogram.
2. An applicant must have blood pressure levels no greater than the appropriate values in the following table:

	Maximum Reclining Blood Pressure	
Age	*Systolic*	*Diastolic*
20 to 29.....	140	90
30 to 39.....	150	90
40 to 49.....	150	100
50 and over ...	160	100

3. An applicant must demonstrate to X-ray no evidence of increase in heart size beyond normal limits.
4. An applicant under any form of treatment for any disease of the cardiovascular system is disqualified.

D. *Neurological*

1. Applicant must have no medical history or clinical diagnosis of a convulsive disorder.
2. Applicant must have no medical history or clinical diagnosis of a disturbance of consciousness without satisfactory medical explanation of the cause.
3. Applicant must have no other disease of the nervous system that is found by the Federal Air Surgeon to constitute a hazard to safety in the Air Traffic Control System.
4. An applicant under any form of treatment, including preventive treatment, of any disease of the nervous system, is disqualified.

E. *Musculoskeletal*

1. The applicant must have no deformity of spine or limbs of sufficient degree to interfere with the requirements of the position of employment being sought. Certain limitations of range of motion may be acceptable for certain specific options or positions, in which case acceptance for employment will be noted specifically for that position or option only. (Terminal, Center, or Flight Service Station.)
2. The applicant must have no absence of any extremity or digit or any portion thereof sufficient to interfere with the requirements for locomotion and manual dexterity of the position being sought. Acceptance of limitations for employment for a specific option or position will be noted for that option or position only.
3. The applicant must have no condition which predisposes to fatigue or discomfort induced by long periods of standing or sitting.

F. *General Medical*

1. An applicant must have no medical history or clinical diagnosis of diabetes mellitus.
2. The applicant must possess such a body build as not to interfere with sitting in an ordinary office armchair.
3. The applicant must have no other organic, functional or structural disease, defect or limitation found by the Federal Air Surgeon to clinically indicate a potential hazard to safety in the Air Traffic Control System. A pertinent history and clinical evaluation, including laboratory evaluations will be obtained, and when clinically indicated special consultations or examinations will be accomplished.

G. *Psychiatric*

The applicant must have no established medical history or clinical diagnosis of any of the following:

1. A psychosis;
2. A neurosis;
3. Any personality disorder or mental disorder that the Federal Air Surgeon determines clearly indicates a potential hazard to safety in the Air Traffic Control System. The determinations will be based on the medical case history (including past, social, and occupational adjustment) supported by clinical psychologists and board-certified psychiatrists, including such psychological tests as may be required as a part of medical evaluation, as the Federal Air Surgeon may prescribe.

H. *Substance Dependency*

A history, review of all available records, clinical and laboratory examination will be utilized to determine the presence or absence of substance dependency, including alcohol, narcotic, and non-narcotic drugs. Wherever clinically indicated, the applicant must demonstrate an absence of these on thorough psychiatric evaluation, including any clinical or psychological tests required as part of the medical evaluation.

RETENTION REQUIREMENTS

The physical requirements in this section apply to: (1) air traffic control specialists in the center and terminal specializations who are actively engaged in the separation and control of air traffic; (2) immediate supervisors of air traffic control specialists actively engaged in the separation and control of air traffic; and (3) air traffic control specialists in the station specialization who regularly perform flight assistance services as described under *Description of Work*.

Employees occupying the type of positions

described above are required to requalify in a medical examination given annually, usually during the employee's month of birth. Controllers incurring illness, injury, or incapacitation at any time between the annual examinations are required to be medically cleared before return to air traffic control duty. Examinations, including laboratory tests and consultations, will be accomplished to the extent required to determine medical clearance for continued duty. New employees are required to meet the retention requirements by examination during the first ten months of service.

Those who are found to be not physically or emotionally qualified for air traffic control duties at any time will be subject to reassignment to a position for which they are fully qualified, retirement for disability if eligible, or separation from the service.

To be medically qualified for retention in the Federal Aviation Air Traffic Service, an air traffic control specialist must meet the following requirements. (Unless otherwise indicated these requirements are identical for all air traffic control specialists.)

A. *Eye*

1. *Distant Visual Acuity*

a. *Terminal.*—The terminal specialist must demonstrate: Distant visual acuity of 20/20 or better in each eye separately, without correction, or distant visual acuity of 20/200 or better in each eye separately, with correction to 20/20 or better in each eye.

b. *Center.*—The center specialist must demonstrate: Distant visual acuity of 20/20 or better in each eye separately, without correction, or distant visual acuity of 20/200 or better in each eye separately, with correction to 20/20 or better in each eye.

c. *Flight Service Station.*—The station specialist must have distant visual acuity of 20/20 or better in each eye separately, with or without correction.

2. *Near Visual Acuity.*—all air traffic control specialists must demonstrate near visual acuity of v=.75 or better (or equivalent according to table of equivalents scale) in each eye separately with or without correction.

Scale

Table of Equivalents

Jaeger	Snellen Metric	Snellen English	FAA
J–1	0.50	20/20	0.50
J–4	.75	20/30	.75
J–6	1.00	20/40	1.00
J–8	1.25	20/50	1.25
J–10	1.50	20/60	1.75
J–12	1.75	20/70	2.00

3. *Color Vision.*—all specialists must demonstrate normal color vision.

4. *Visual Fields*

a. *Terminal.*—The terminal specialist must demonstrate normal fields of vision.

b. *Center.*—The center specialist must demonstrate normal fields of vision.

c. *Flight Service Station.*—The station specialist must demonstrate normal central fields of vision.

5. *Phorias; Double Vision*

a. *Terminal.*—The terminal specialist must have no esophoria or more than 6 prism diopters or exophoria of more than 6 prism diopters or hypophoria or hyperphoria of more than one prism diopter.

b. *Center.*—The center specialist must have no esophoria of more than 6 prism diopters or exophoria of more than 6 prism diopters or hyperphoria or hypophoria or more than one prism diopter.

c. *Flight Service Station.*—The station specialist must have no condition which causes double vision.

6. *Intraocular Tension; Glaucoma; Eye Pathology*—all specialists must demonstrate normal intraocular tension by tonometry. Must have no form of glaucoma in either eye and no other chronic pathological condition of either eye or adnexa that would be likely to interfere with proper function.
7. *Medication for Control of Intraocular Tension*—must require no routine medication for control of intraocular tension.

B. *Ear, Nose, and Throat*

1. *Ear Disease; Equilibrium*
   a. *Terminal.*—The terminal specialist must demonstrate no chronic disease of the outer or middle ear, unilateral or bilateral, that might interfere with the comfortable, efficient use of standard headphone apparatus or that might interfere with accurate perception of voice transmissions or spoken communications. Must have no ear disease that might cause a disturbance of equilibrium.
   b. *Center.*—The center specialist must demonstrate no chronic disease of the outer or middle ear, unilateral or bilateral, that might interfere with the comfortable, efficient use of standard headphone apparatus or that might interfere with accurate perception of voice transmissions or spoken communications. Must have no ear disease that might cause a disturbance of equilibrium.
   c. *Flight Service Station.*—The station specialist must demonstrate no chronic disease of the outer or middle ear, unilateral or bilateral, that might interfere with accurate perception of voice transmissions or spoken communications. Must have no ear disease that might cause a disturbance of equilibrium.
2. *Mastoid*—must have no active disease of either mastoid.
3. *Eardrum Perforation*—must demonstrate no unhealed perforation of either eardrum.
4. *Speech*—must have no interference with enunciation and must have clear speech free of stuttering or stammering.
5. *Hearing Loss*—must have no hearing loss in either ear of more than 30 decibels in either the 500, 1000, or 2000 HZ ranges. He must have no loss in these ranges greater than 25 decibels in the better ear. Non-static hearing loss in either ear of greater than 50 decibels in the 4000 HZ range will require an otological consultation.

C. *Cardiovascular*

1. *Heart Disease*
   a. *Terminal.*—The terminal specialist must have no history or symptomatic form of heart disease or any form requiring therapy.
   b. *Center.*—The center specialist must have no history or symptomatic form of heart disease or any form requiring therapy.
   c. *Flight Service Station.*—The station specialist must have no symptomatic form of heart disease.
2. *Disturbance of Rhythm; Other Abnormality; EKG*—must demonstrate no disturbance of rhythm or other cardiac abnormality on clinical examination including resting and when clinically indicated, post-exercise electrocardiography.
3. *Blood Pressure*—must demonstrate blood pressure levels no greater than the appropriate values in the following table. Must require no medication for control of blood pressure.

Maximum Reclining Blood Pressure

Age	*Systolic*	*Diastolic*
20 to 29	140	90
30 to 39	150	90
40 to 49	150	100
50 and over	160	100

4. *Heart size*—must have no increase in heart size beyond normal limits.

D. *Neurological*

1. *Convulsive Disorder*—must have no medical history or clinical diagnosis of a convulsive disorder.
2. *Disturbance of Consciousness*—must have no medical history or clinical diagnosis of a disturbance of consciousness without satisfactory medical explanation of the cause.
3. *Cerebrovascular Accident*—must have no history of a cerebrovascular accident. Must have no cerebrovascular condition which increases the likelihood of such an accident.
4. *Other Neurological Disorders*—must have no other neurological disorder that is found by the Federal Air Surgeon to constitute a hazard to safety in the Air Traffic Control System.
5. *Treatment for Nervous System Disorder*—must be under no form of treatment, including preventive treatment, of any disorder of the nervous system.

E. *Musculoskeletal*

1. *Ranges of Motion*—must have no deformity of spine or limbs that interferes with satisfactory and safe performance of duty.
2. *Amputations; Dexterity*—must have no absence of any extremity or digit or any portion thereof sufficient to interfere with satisfactory and safe performance of duty.
3. *Predisposition to Fatigue and/or Discomfort*—must have no condition which predisposes to fatigue or discomfort induced by long periods of standing or sitting.

F. *General Medical*

1. *Diabetes Mellitus*

a. *Terminal.*—The terminal specialist who has an established clinical diagnosis of diabetes mellitus will be evaluated for continued duty based upon the degree of control of the disease. Whether by diet alone, or diet and hypoglycemic drugs, control which results in the absence of symptoms and the absence of complications of the disease or the therapy, may be considered as satisfactory control. A controller with diabetes mellitus who cannot demonstrate satisfactory control over specified and observed periods of 48 hours is not cleared for duty involving active air traffic control.

b. *Center.*—The center specialist who has an established clinical diagnosis of diabetes mellitus will be evaluated for continued duty based upon the degree of control of the disease. Whether by diet alone, or diet and hypoglycemic drugs, control which results in the absence of symptoms and the absence of complications of the disease or the therapy, may be considered as satisfactory control. A controller with diabetes mellitus who cannot demonstrate satisfactory control over specified and observed periods of 48 hours is not cleared for duty involving active air traffic control.

c. *Flight Service Station.*—The station specialist who has an established clinical diagnosis of diabetes mellitus will be evaluated for continued duty based upon the degree of control of the disease. Whether by diet alone, or diet and hypoglycemic drugs, control which re-

sults in the absence of symptoms and the absence of complications of the disease or the therapy, may be considered as satisfactory control.

2. *Body Configuration*—must possess such a body build as not to interfere with sitting in an ordinary office armchair.
3. *Other Medical Conditions*—must have no other organic, functional or structural disease, defect or limitation found by the Federal Air Surgeon to clinically indicate a potential hazard to safety in the Air Traffic Control System. A pertinent history and clinical evaluation including laboratory screening will be obtained, and when clinically indicated, special consultations and examinations will be accomplished.

G *Psychiatric*

1. *Psychotic Disorder*—must have no established medical history or clinical diagnosis of a psychosis.
2. *Mental, Neurotic, or Personality Disorder*—must have no neurosis, personality disorder, or mental disorder that the Federal Air Surgeon determines clearly indicates a potential hazard to safety in the Air Traffic Control System. The determinations will be based on the medical case history (including past, social, and occupational adjustment) supported by clinical psychologists and board-certified psychiatrists, including such psychological tests as may be required as a part of medical evaluation, as the Federal Air Surgeon may prescribe.
3. *Alcoholism and/or Alcohol Abuse*—must have no clinical diagnosis of alcoholism or alcohol abuse, since these constitute a hazard to safety in the Air Traffic Control System.

   A history and clinical evaluation, including laboratory evaluation (when indicated) will be accomplished to determine the presence or absence of alcohol addiction, dependency, habituation, abuse or use.
4. *Addiction, Dependency, Habituation, or Abuse of Dangerous Drugs*—must have no clinical diagnosis of addiction, habituation, dependency or abuse of any narcotic or nonnarcotic drug, since these constitute a threat to safety in the Air Traffic Control System.

   A history and a clinical evaluation, including laboratory evaluation (when indicated) will be accomplished to determine the presence or absence of drug addiction, dependency, habituation, abuse or use.←

Marine Cargo Assistant GS-5
Marine Cargo Specialist GS-7/12

Description of work

Incumbents of marine cargo positions make preliminary plans for stowage of marine cargo aboard carrier vessels and maintain surveillance of loading and discharge operations. They are concerned with assuring maximum utilization of assigned vessel space, safety of cargo, and efficient use of labor, gear, and time in loading, stowing, and discharge operations. They authorize deviations from plans, investigate stevedore detentions and extra labor on piers and ships, approve legitimate detention time and extra labor, and insure compliance with safety regulations, maritime regulations, terminal regulations, etc.

Experience and training requirements

Applicants must have had the following amounts of general and specialized experience:

Grade	General experience (years)	Specialized experience (years)	Total (years)
GS-5	3	None	3
GS-7	3	1	4
GS-9	3	2	5
GS-11	3	3	6
GS-12	3	3	6

General experience.—Applicants must have had progressively responsible experience related to waterfront cargo handling or cargo layout and planning operations in the amounts specified in the table above. This experience must show a knowledge of cargo loading aboard ships and a familiarity with marine terminal activities. This experience may have been gained in performing cargo handling operations aboard vessels or at a marine terminal, in such positions as Ship Checker, Dock Checker, Leadingman Stevedore, Vessel Timekeeper, Boatswain, or as a Junior Deck Officer.

Specialized experience.—This experience must have been progressively responsible experience gained in (1) preparing preliminary cargo stowage plans and/or (2) overseeing loading, stowage, and discharge operations to make certain that they conform to preliminary plans or authorizing necessary changes thereto, and preparing final plans. This experience must have included work involved on vessels of not less than 5,000 deadweight tons. This experience must also clearly show, to a degree commensurate with the level of the position, a comprehensive knowledge of marine rules and regulations and the ability to plan, direct, organize, and coordinate cargo handling activities; to interpret and apply policies; to investigate operations and practices and resolve problems; and to establish and maintain effective work relationships. Specialized experience in layout planning, shiploading, and cargo handling may be gained during such seagoing and marine terminal assignments as service in the U.S. Navy as a cargo officer, similar service in the Merchant Marine, employment by commercial steamship lines, etc., as well as in a Marine Cargo Specialist capacity in government-operated terminals.

Substitution for experience.—Applicants may substitute graduation from a Deck Officer Course given by a State or Federal Maritime School for the required 3 years of *general* experience. Possession of a Coast Guard license (unlimited: any tonnage; any waters) as Third Officer or higher meets the *general* experience requirements in full.

No substitution will be allowed for any portion of the required *specialized* experience.

Supervisory → positions

For supervisory positions use the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook in conjunction with this standard.←

Quality of experience.—For positions at grades GS-7 through 11 at least 6 months of the required specialized experience must have been at a level of difficulty comparable to that of the next lower grade, or at least 1 year must have been comparable to the second lower grade in the Federal service. For positions at GS-12, at least 1 year of the required specialized experience must have been at a level of difficulty

comparable to grade GS–11 in the Federal service.

In addition to the essential qualification at all levels of progressively responsible experience, positions at the GS–10 level and above require special capability in making rapid, independent decisions under pressure, and in promoting cooperation and acceptance through effective personal contacts.

Basis of rating

No written test is required. Applicants' qualifications will be rated on a scale of 100 based upon the amount and quality of experience, education, training, and personal qualifications judged appropriate in relation to the requirements of these positions. Such ratings will be based on competitors' statements in their applications, or upon any additional evidence obtained by the Civil Service Commission.

Physical requirements

See part 2, Physical requirements, paragraph 9. In addition, applicants must possess emotional and mental stability. (September 1961)

PR Codes: C–1, 2, 3; D–1; E.

September 1961
Reprinted without change
December 1975 (TS 156)

AIRCRAFT OPERATION SERIES[1]

Airplane Pilot
Helicopter Pilot
Aircraft Pilot
Flight Instructor (Fixed Wing)
Flight Instructor (Helicopter)
Flight Instructor (Aircraft)
Flight Test Pilot
Airspace System Inspection Pilot
Navigator
Flight Engineer

DESCRIPTION OF WORK

Airplane Pilot—Helicopter Pilot—Aircraft Pilot

Pilots light or heavy, single or multiengine airplanes, helicopters, or both. The work involves, for example, transporting passengers, freight and supplies; performing reconnaissance, survey and patrol assignments; dropping cargo and smokejumpers; or taking wild game censuses. The duties of these positions are performed day and night over all kinds of terrain and in any weather. Specific certificates and instrument flight ratings required depend upon the requirements of specific positions.

Flight Instructor (Fixed Wing)—Flight Instructor (Helicopter)—Flight Instructor (Aircraft)

Serves as instructor pilot in various models of helicopters or airplanes. Helicopter instruction includes, for example: Taxiing, hovering, climbing turns, normal and steep approaches and running landings and takeoffs day or night under visual or instrument flight rules or both. Fixed wing instruction includes, for example: Normal and short-field takeoffs and landings; flight formations; and aerobatics both day and night under visual or instrument flight rules or both. Specific certificates and instrument flight ratings required depend upon the requirements of specific positions. Staff positions involve planning, development, execution, and evaluation of flight instruction programs.

Flight Test Pilot

Administers regulations relating to the airworthiness of aircraft through the inspection, flight testing, and evaluation of the flight performance, powerplant operation, and flight characteristics of aircraft (prototype or modified) and of aircraft components presented for type certification. Supervises the activities of designated flight test representatives and participates in the investigation of accidents and violations of regulations. Staff positions involve planning, development, execution, and evaluation of flight test programs.

Airspace System Inspection Pilot

Persons appointed to these positions conduct in-flight inspections of existing and experimental air navigation facilities for the purpose of determining space radiation patterns, modulation levels (both RF and Audio), interference with transmissions and responses of aids to air navigation and air traffic control, signal strength, and rate of return and intelligibility of transmitted information. From an analysis of the data derived from such inspection they determine the adherence to prescribed tolerances, safety and practicability of flight procedures based on air navigation and air traffic control facilities, and overall adequacy of such aids. They pilot multiengine aircraft specially equipped as flying electronic laboratories on day and night flights, both on and off established airways under visual and instrument flight conditions, recording and analyzing facility performance, and reporting on the operation of aids to navigation, and potential hazards to air navigation. They assist in accident investigations by making special flight tests of any facilities concerned; and maintain liaison with aviation interests regarding the installation, operation and use of air navigation facilities. Staff positions involve planning, development, execution, and evaluation of airspace system inspection programs.

Navigator

Navigators perform such work as: Preparing flight plans; checking serviceability of naviga-

[1] This standard supersedes the X-118 standard for this series which was issued in May 1964 and the single-agency standard which was issued in January 1965.

tional systems; making computations and furnishing the pilot with such information as heading, groundspeed, airspeed, estimated time of arrival and position of aircraft; and maintaining flight logs. Work is performed as a member of the flight crew under the direction of the pilot.

Flight Engineer

Flight Engineers perform such work as: Computing takeoff and flight performance data; planning fuel flow and adjusting and setting mixture controls; operating and synchronizing engines; setting pitch control on propeller aircraft; observing and analyzing instrument readings; and operating pressurization, hydraulic and electrical systems. Work is performed as a member of the flight crew under flight operating procedures and at the direction of the pilot.

EXPERIENCE, TRAINING AND OTHER REQUIREMENTS

To be eligible for a position in this series, the applicant must possess the flying time, certificates, and ratings required for that position. Except to the extent defined below, this standard does not require a specified number of years of experience.

Airplane Pilot
Helicopter Pilot
Aircraft Pilot
Airspace System Inspection Pilot

Grade	Total time (hours)	Pilot-in-command (hours)	Multi-engine (hours)	Instrument/ night (hours)	Last 12 months (hours)
GS-9	1200	250	100	100	100
GS-11/15	1500	250	500	150	100

Certificates and ratings

For all grades and specializations, applicants must hold a valid Commercial Pilot Certificate.

a. Applicants for the Airspace System Inspection Pilot specialization must hold, in addition, multiengine land and instrument ratings.

b. For positions in the Airplane Pilot, Helicopter Pilot and Aircraft Pilot specializations, rating requirements depend on position requirements. For example, some positions require instrument ratings, but not multiengine ratings, while others require both and still others require neither. Specific ratings for specific positions must be identified through position analyses.

Quantity and type of experience

All applicants must meet the pilot-in-command, last 12 months, and total time requirements. Applicants for positions that require multiengine ratings, or instrument ratings, or both, must also possess the hours required under the heading or headings appropriate to those ratings. Applicants for positions that do not require instrument ratings are not required to possess the instrument time, and applicants for positions that do not require multiengine ratings are not required to possess the multiengine time. Similarly, applicants for positions that do not require either instrument or multiengine ratings are not required to possess either instrument or multiengine time.

a. Flying time in any of the above categories may have been acquired in aircraft of any weight, *except* that in those specializations or positions at GS-11 and above which require operation of heavy multiengine aircraft at least 50 percent of the multiengine time must have been in multiengine aircraft with a gross weight of over 12,500 pounds.

b. Flying time in any of the above categories may have been acquired as pilot-in-command or copilot, *except* the pilot-in-command hours specifically required.

c. Instrument or night time must include at least 40 hours of actual instrument weather time. The balance of this column may have been acquired entirely in either category, or any combination thereof, and may include other types of instrument time.

d. Each hour as pilot-in-command of jet air-

[1] See footnote on page 1.

craft may be counted as 2½ hours of flying time. To be creditable as multiengine time, this type of flying must have been acquired in multiengine jet aircraft. A maximum of 300 hours of this time may be used in this manner toward meeting 750 hours of the flight time requirements. *This special credit is not permitted, however, for the instrument/night time required, nor for the 100 hours of flying time required within the past year.*

Substitution for recency

One year of experience listed below which was acquired within the most recent year may be substituted for not more than 50 hours of the 100 hours of flying time required within the last 12 months.

A. *For all positions and specializations—*

1. Chief Pilot of an airline or of an FAA certificated flight school.
2. Designated Pilot Examiner or Instrument Rating Examiner.
3. Chief Test Pilot supervising experimental type aircraft testing with a factory or an airline.
4. Designated Airline Transport Pilot Certificate Examiner.
5. Supervisor of flight operations with an airline.

B. *For FAA positions and specializations, in addition to A above—*

1. Experience as a certificated air traffic controller, civil or military, individually responsible for formulating and issuing clearances to IFR air traffic.
2. Experience in the FAA as a Pilot, Inspector, or Specialist in the Airspace Systems Inspection, Flight Test, Air Carrier Operations, or General Aviation Operations programs; as a flight check data reduction, analysis and evaluation specialist; or as an instructor, supervisory instructor or training specialist conducting training in Airspace System Inspection.

Flight Test Pilot

Grade	Total time (hours)	Pilot-in-command (hours)	Last 12 months (hours)
GS-9	1500	1000	100
GS-11/12	1750	1150	100

Certificates and ratings

For all grades, applicants must hold a valid Commercial Pilot Certificate with single-engine land, multiengine land, and instrument ratings. For positions which also involve operation of helicopters applicants must possess certificates and ratings for helicopters appropriate to the requirements of the positions.

Quantity and type of experience

a. Flying time in any of the above categories may have been acquired in aircraft of any weight.

b. Flying time in any of the above categories may have been acquired as pilot-in-command or copilot *except* (1) the pilot-in-command hours specifically required, and (2) the 100 hours recent time must include at least 65 hours as pilot-in-command.

c. Each hour as pilot-in-command of jet-powered, rocket-powered or other specialized types of aircraft may be counted as 2½ hours of flying time. A maximum of 300 hours of specialized flying time may be used in this manner toward meeting 750 hours of the flight time requirements. *This special credit is not permitted, however, for the 100 hours of flying time required within the past year.*

Substitutions for recency

One year of experience listed below which was acquired within the most recent year may be substituted for the 100 hours of flying time required within the last 12 months.

A. *For positions in all agencies—*

Chief Test Pilot with a factory or airline supervising experimental type aircraft testing.

[1] See footnote on page 1.

B. *For positions in the FAA, in addition to A above—*

1. FAA Pilot, Inspector or Specialist in in Flight Test, Air Carrier Operations, General Aviation Operations, or Airspace System Inspections.
2. FAA Instructor, Supervisory Instructor or Training Specialist conducting or providing training in the engineering flight testing of aircraft.

Flight Instructor (Fixed Wing)
Flight Instructor (Helicopter)
Flight Instructor (Aircraft)

Grade	Total time (hours)	Instructor time (hours)	Last 12 months (hours)
GS-9	1000	200	50
GS-11/15	1500	300	100

Certificates and ratings

Applicants for all positions must hold a valid Commercial Pilot Certificate and a Flight Instructor Certificate for the class of aircraft appropriate for the specialization, e.g., fixed-wing, helicopter, or both. Depending on the specific requirements of the position, applicants may be required to possess, in addition, instrument ratings. In those situations, the flight instructor's time must have been as an instrument flight instructor.

Quantity and type of experience

The instructor time must have been in the aircraft appropriate for the specialization, e.g., fixed-wing, helicopter, or both, in whatever combination is appropriate.

Substitution for recency

One year of experience listed below which was acquired within the most recent year may be substituted for 50 of the hours of flying time required within the last 12 months.

1. Experience as an Instructor, Supervisory Instructor or Training Specialist conducting or providing training in the field of flight instruction or flight testing of airmen.
2. Experience as a designated Pilot Examiner or Instrument Rating Examiner.
3. Experience as a designated Airline Transport Pilot Certificate Examiner.

Navigator and Flight Engineer

Grade	Years of experience		Total (years)
	General	Specialized	
GS-6	3	0	3
GS-7	3	1	4
GS-9	3	2	5
GS-11 & above	3	3	6

General experience

Navigator and Flight Engineer.—Trade, craft, technical, administrative, or professional experience which provided applicant with a working knowledge of the specialization for which application is made. For example, experience as a mechanic with responsibility for overhaul and repair of navigational or other aircraft systems or experience as an electronic technician with responsibility for the aircraft systems appropriate to the specialization.

Specialized experience

For Navigator.—Experience which provided the applicant with:

a. Knowledge of flight plan requirement;
b. Skill in using navigational computers, conversion charts, and flight planning reference data;
c. Ability to recognize celestial bodies for navigation use;
d. Knowledge of electronic navigational systems and aircraft characteristics;
e. Ability to determine the location of the aircraft by navigational computations; and
f. As required, ability to use high altitude, polar and constant pressure techniques.

For Flight Engineer.—Experience which provided the applicant with:

a. Knowledge of loading, airplane systems, emergency procedures, and computations of fuel consumption;

[1] See footnote on page 1.

b. Skill to perform preflight inspection, in-flight operation of assigned systems, and emergency duties required, for example, in engine failure;
c. Ability to take and interpret instrument readings and make control adjustments and settings;
d. Knowledge of operating characteristics of aircraft engines and systems; and
e. Knowledge of flight procedures and sequences specific to flight control panel operation.

LEVEL AND QUANTITY AND QUALITY OF EXPERIENCE

For eligibility at each grade through GS–11, the applicant must have had at least 6 months of experience comparable in level of difficulty and responsibility to that of the next lower grade, or 1 year of experience comparable in level of difficulty and responsibility to that of the second lower grade in the Federal Service. For eligibility at grades GS–12 and above, the applicant must have had at least 1 year of experience comparable in level of difficulty and responsibility to that of the next lower grade in the Federal service.

Quality of experience

For each grade through GS–11, the amount of experience required in the immediately preceding paragraph may have been either *Acceptable Experience* or *Preferred Experience* as defined below. For grades GS–12 and above, the experience must have been *Preferred Experience.*

Acceptable Experience: For all specializations, experience as a pilot or copilot in general, air carrier or military aviation.

Preferred Experience: Experience as a pilot or copilot which provided a thorough knowledge of the guidelines, procedures, regulations, laws, policies and purposes of the program within which the position functions. Illustrations of the kinds of knowledges and programs referred to are provided below by specialization.

A. *Airplane, Helicopter and Aircraft Pilot.*—Positions in these specializations function within programs such as:
1. Scientific exploration or geological survey programs and require a thorough knowledge of reconnaissance, survey and patrol assignments;
2. Fire control programs which require, for example, a thorough knowledge of dropping cargo and smokejumpers;
3. Game-law enforcement programs which require, for example, the knowledge and ability to take wild game censuses;
4. Border patrol programs which require, for example, the knowledge and ability to search for signs of illegal border crossings and to trace aliens.

The program knowledges are those appropriate to the position. For example, a position in the border patrol program does not require knowledge of the geological survey program.

B. *Airspace System Inspection Pilot.*—Experience for positions in this specialization must have provided a thorough knowledge of the operation, inspection and evaluation of radio aids to air navigation; the investigations and analyses made for the purpose of determining the adequacy of existing and experimental air navigation aids and associated flight procedures; and how to analyze and evaluate facility flight inspection performance and operation data.

C. *Flight Test Pilot Specialization.*—Experience for positions in this specialization must have included one of the following: (1) flight testing aircraft for type certification; (2) analyzing aircraft performance data; or (3) successful completion of a recognized Flight Test Pilot course of at least 6 months' duration such as a military Flight Test School or the FAA Flight Test Pilot course.

[1] See footnote on page 1.

D. *Flight Instruction Specializations.*—Experience for positions in these specializations must have provided a thorough knowledge of the methods, techniques and principles of classroom and in-flight instructing and examining.

BASIS OF RATING

No written test is required. Applicant's qualifications will be rated on a scale of 100, based on an evaluation of the quality of the applicant's experience, education and training in relation to the requirements of the position. Ratings will be based on information contained in the applicant's applications and on other evidence which may be obtained.

EXCEPTIONS TO RECENCY REQUIREMENTS

Recency requirements may be waived for candidates or for occupants of staff specialist positions which require pilot knowledges, skills, and abilities but which do not require actual aircraft operation, provided the applicant or candidate otherwise qualifies for the position.

PHYSICAL REQUIREMENTS

At the time of initial appointment, applicants for all pilot positions must possess a currently valid first-class medical certificate in accordance with the regulations of the FAA. Navigators and Flight Engineers must possess a second-class FAA medical certificate. Staff specialists who do not participate in the operation of the aircraft need have only a CSC SF-78 (Certificate of Medical Examination), indicating they are able to perform the duties of their particular job.

Acceptability of medical certificates

To comply with Civil Service Commission regulations, the medical certificate held by the applicant must not be more than 60 days old as of the date a selection is made to fill a position, or as of the date a certificate of eligibles is received from a certifying office. However, to avoid unnecessary expense to applicants, persons who possess a *currently valid* first- or second-class medical certificate which is more than 60 days old need not be required to take another first- or second-class medical examination. Instead, a standard CSC SF-78 (Certificate of Medical Examination) may be accepted in lieu of a new first- or second-class medical certificate, provided the SF-78 medical itself is not more than 60 days old, and also provided that the requirements of the Federal Personnel Manual are observed.

---

[1] See footnote on page 1.

Part IV. Index[1]

This index lists standards included in part III and Single-Agency Qualification Standards which are not in part III, but are published separately and distributed only to the agency in which the positions are located. The Single-Agency Qualification Standards are identified by the notation "(Name of Agency)" after the position, title. Under the series column, two series code numbers are listed for some position titles. In such cases, the first GS or PES [2] code number refers to the standard containing qualification requirements. The second code number, in parenthesis, identifies the series in which the position title is classified.

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Administrative, Program and Management Positions, Various (Multi-Series Standard).	.....	GS–5/15	Apr 80 (TS 176)....	.....	Mar 80 (TS 151)....	
Collateral Correctional Skills, Subject-Matter Positions Requiring.	.....	.....	Jun 71 (TS 139)	.....	Jul 71 (TS 105)	
Equal Employment Opportunity Collateral Assignments, Subject-Matter Positions Involving.	.....	.....	Nov 80 (TS 182)....	.....	.....	
Policy Analysis in Professional Occupations.	.....	.....	Mar 81 (TS 187)....	.....	.....	
Supervisory Positions in General Schedule Occupations.	.....	.....	Nov 68 (TS 120).... Apr 69 (TS 124)....	....	Jun 60 (TS 3)	
Accounting Clerical, Supervisory and Administrative Positions.	GS–500	GS–7/15	Dec 80 (TS 184)....	.....	Aug 63 (TS 40)	

[1] Dates shown in index includes dates of pen-and-ink changes.
[2] Probational Examination Specification.

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Accounting Clerk	GS–300 (GS–525).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 176)	
Accounting Clerk	GS–500	GS–4/6	Dec 80 (TS 184)		Mar 68 (TS 81) May 77	
Accounting Series (See Auditing Series, GS–511).	GS–510	GS–5/15	Jun 82 (TS 200)		May 77 (TS 127)	
Accounting Technican	GS–525	GS–4/9	Jul 68 (TS 116) Nov 69 (TS 129) Apr 78 (TS 165)		Jul 68 (TS 85)	
Actuary	GS–1510	GS–5/15	Dec 68 (TS 121)			
Admeasurement Aid and Technician (Transportation).	GS–1898	GS–4/15		Apr 69 (TS 92)		X
Admeasurer (Transportation)	GS–1898	GS–4/15		Apr 69 (TS 92)		X
Administrative Assistant	GS–341	GS–5/7	Dec 68 (TS 121)		Jul 66 (TS 68)	
Administrative Librarian (with specializations as appropriate).	GS–1410	GS–7/15	Dec 68 (TS 121)		Mar 66 (TS 65)	
Administrative Officer	GS–341	GS–9/15	Dec 68 (TS 121) May 77 (TS 162)		Jul 66 (TS 68)	
Administrative Office (Voluntary Service) (Veterans Administration).	GS–301	GS–8/11		Aug 65 (TS 60)		X
Administrative Positions, Multi-Group Standard Explanatory Note.	GS–301	GS–5/15	Apr 80 (TS 176)			
Aeronautical Information Specialist	GS–1361	GS–5/15	Dec 62 (TS 69) Dec 75 (TS 156)		Dec 62 (TS 32)	

Agricultural Commodity Aids (Grain) (Agriculture).	GS–1981	GS–2/4		Apr 79 (TS 140)		X
Agricultural Commodity Graders (All Specializations) (Agriculture).	GS–1980	GS–5/15		Jul 79 (TS 144)		X
Agricultural Commodity Market Reporter (Dairy and Poultry Market Reporting).	GS–1147	GS–7/12	Jul 75 (TS 154)			
Agricultural Commodity Market Reporter (Fresh Fruits and Vegetables Market Reporting).	GS–1147	GS–7/9	Jul 75 (TS 154)			
Agricultural Commodity Market Reporter (Grain and Feed Market Reporting).	GS–1147	GS–9/11	Jul 75 (TS 154)			
Agricultural Commodity Market Reporter (Livestock Market Reporting).	GS–1147	GS–7/9	Jul 75 (TS 154)			
Agricultural Commodity Technician (Grain) (Agriculture).	GS–1981	GS–4/7		Apr 79 (TS 140)		X
Agricultural Economist	GS–110	GS–9/15	Dec 68 (TS 121)		May 63 (TS 37)	
Agricultural Extension Specialist (Agriculture).	PES No. 1957 GS–406.	GS–12/15	Jan 55			
Agricultural Management Specialist	GS–475	GS–5/15	Dec 68 (TS 121)		Jul 67 (TS 76)	
Agricultural Marketing Specialist (Various Specializations) (Agriculture).	GS–1146	GS–5/15		Dec 68 (TS 89)		X
Agricultural Program Specialist (Agriculture).	GS–1145	GS–5/15		Oct 80 (TS 154)		X
Agricultural Research Technician	GS–404	GS–5/11	Nov 65 (TS 94) Oct 76 (TS 160)		Nov 65 (TS 62) May 77 Jun 77	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Agronomist	GS–471	GS–5/7	Dec 68 (TS 121)		Apr 61 (TS 13)	
Air Safety Investigating (Transportation).	GS–1815	GS–9/14		Sep 70		
Air Traffic Control Specialist (All Specializations).	GS–2152	GS–4/15	Feb 76 (TS 158) Dec 80 (TS 183)		Oct 68 (TS 88)	
Aircraft Pilot	GS–2181	GS–9/15	Apr 68 (TS 113)		Apr 68 (TS 82)	
Airplane Pilot	GS–2181	GS–9/15	Apr 68 (TS 113)		Apr 68 (TS 82)	
Airport Police Officer (Federal Aviation Administration).	GS–083	GS–4/5		May 74 (TS 113)	May 74 (TS 113)	
Airspace System Inspection Pilot	GS–2181	GS–9/15	Apr 68 (TS 113)		Apr 68 (TS 82)	
Alcohol Tax Technician (Treasury)	GS–1855	GS–3/8		Mar 73 (TS 109)		
Alcohol, Tobacco and Firearms Inspection (Treasury).	GS–1854	GS–5 and above.		Dec 71 (TS 106)		X
Animal Health Technician (Agriculture).	GS–704	GS–5/7		Sep 79 (TS 147)		
Animal Scientist	GS–487	GS–5/15	Jan 83 (TS 203)			
Anthropologist	GS–190	GS–5/15	Dec 68 (TS 121)		Mar 66 (TS 65)	
Anthropologist (Smithsonian)	GS–190	GS–5/15		Dec 68 (TS 89)		X
Appraiser	GS–1171	GS–5/15	Jun 72 (TS 143)		Jun 72 (TS 108)	
Apprenticeship and Training Representative (Labor).	GS–243	GS–9/15		Jan 75 (TS 114)		X
Archeologist	GS–193	GS–5/15	Aug 83 (TS 204)			

Architect	GS–808	GS–5/15	Dec 68 (TS 121)		Sep 62 (TS 29) Sep 64 (TS 51)	
Archives Aid	GS–300 (GS–1421)	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Archives Specialist	GS–1421	GS–9/15	Jul 68 (TS 116)		Jul 68 (TS 85)	
Archives Technician	GS–1421	GS–4/11	July 68 (TS 116)		July 68 (TS 85)	
Archivist	GS–1420	GS–5/15	Dec 68 (TS 121)		Sep 65 (TS 61)	
Art Specialist	GS–1056	GS–5/15	Apr 70 (TS 133)		Apr 70 (TS 100)	
Assistant Hospital Housekeeping Officer.	GS–673	GS–5/15	Nov 78 (TS 168)		Aug 67 (TS 77)	
Assistant State Veterans Employment Representative (Labor).	GS–301	GS–11/12		May 62 (TS 26) Jun 74 Mar 77 (TS 125)		X
Astronomer	GS–1330	GS–5/15	Jun 70 (TS 134)		Jun 70 (TS 101)	
Astrophysicist	GS–1330	GS–5/15	Jun 70 (TS 134)		Jun 70 (TS 101)	
Audiologist (Veterans Administration).	GS–665	GS–9/15		Jan 69 (TS 90)		X
Audiologist	GS–665	GS–9/15	Feb 70 (TS 131)		Feb 70 (TS 98)	
Audiologist-Speech Pathologist (Veterans Administration).	GS–665	GS–9/15		Jan 69 (TS 90)		X
Audio-Visual Production Officer	GS–1071	GS–5/14	Dec 68 (TS 121) Apr 75 (TS 153)		Nov 62 (TS 31)	
Audio-Visual Production Specialist	GS–1071	GS–5/14	Dec 68 (TS 121) Apr 75 (TS 153		Nov 62 (TS 31)	
Auditing Series (See Accounting Series, GS–510).	GS–511	GS–5/15	Jun 82 (TS 200)			
Automotive Equipment Dispatcher	GS–2151	GS–3/7	Jan 63 (TS 70)		Jan 63 (TS 33)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Automotive Transportation Administrator.	GS–2150	GS–11	Apr 53 (TS 6)			
Automotive Transportation Specialist	GS–2150	GS–9	Apr 53 (TS 6)			
Autopsy Assistant	GS–625	GS–2/5	May 79 (TS 170)			
Aviation Safety Inspector (Transportation).	GS–1825	GS–5/15		Jan 75 (TS 114)		
Bank Examiner (Federal Deposit Insurance Corporation).	GS–570	GS–5/15		Nov 63 (TS 43)		X
Biochemist (Veterans Administration).	GS–1320	GS–5/15		Nov 62 (TS 31)		
Biological Aid	GS–404	GS–1/4	Nov 65 (TS 94) Oct 76 (TS 160)		Nov 65 (TS 62) May 77 Jun 77	
Biological Laboratory Aid (Veterans Administration).	GS–404	GS–2/3		Jul 64 (TS 50)		X
Biological Laboratory Technician	GS–404	GS–5/11	Nov 65 (TS 94) Oct 76 (TS 160)		Nov 65 (TS 62) May 77 Jun 77	
Biological Laboratory Technician (Veterans Administration).	GS–404	GS–4/9		Jul 64 (TS 50)		X
Biological Technician	GS–404	GS–5/11	Nov 65 (TS 94) Oct 76 (TS 160)		Nov 65 (TS 62) May 77 Jun 77	
Biologist	GS–401	GS–5/15	Dec 68 (TS 121)			
Biologist (Veterans Administration)	GS–401	GS–5/15		Aug (TS 86)		

Bond Sales Promotion Representative (Treasury).	GS–011	GS–5/15		Aug 68 (TS 86)		
Border Patrol Agent (Justice)	GS–1896	GS–5/15		Jan 77 (TS 123)	Jan 77 (TS 123)	
Botanist	GS–430	GS–5/15	Dec 68 (TS 121)			
Budget Officer/Analyst	GS–560	GS–7/15	Jun 81 (TS 189)			
Budget Clerical and Assistance	GS–300 (GS–561)	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Building Management Assistant (General Services Administration).	GS–1176	GS–5/15		Dec 71 (TS 106)		X
Building Management Officer (General Service Administration).	GS–1176	GS–5/15		Dec 71 (TS 106)		X
Building Management Specialist (General Services Administration).	GS–1176	GS–5/15		Dec 71 (TS 106)		X
Building Manager (General Services Administration).	GS–1176	GS–5/15		Dec 71 (TS 106)		X
Business Management Specialist/Officer (Small Business Administration).	GS–1101	GS–5/15		May 79 (TS 142)		
Cadet Hostess	GS–1666	GS–2/7	May 64 (TS 82)			
Cardiac Catheterization Technician	GS–649	GS–4/9	Sep 68 (TS 118) Apr 73 (TS 145)		Sep 68 (TS 87) May 77	
Cargo Scheduler	GS–2144	GS–5/9	Dec 75 (TS 156)		Jan 63 (TS 33)	
Cartography Series	GS–1370	GS–5/15	Mar 82 (TS 198)			
Cartographic Technician Series	GS–1371	GS–1/8	Mar 82 (TS 198) Aug 82 (TS 201)			
Cash Clerk (Veterans Administration).	GS–530 (GS–593).	GS–5/14		Jul 64 (TS 50)		X

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Cash Processing Clerk	GS–300 (GS–530).	GS–1/3	Apr 80 (TS 176)		Mar 80 (TS 151)	
Cash Processing Clerk	GS–500 (GS–530).	GS–4/6	Dec 80 (TS 184)		Mar 68 (TS 81) May 77	
Cemetery Administrator (Army)	GS–1630	GS–5/15		Jun 71 (TS 105)	Jun 71 (TS 105)	
Cemetery Superintendent (Army)	GS–1630	GS–5/15		Jun 71 (TS 105)	Jun 71 (TS 105)	
Chemist	GS–1320	GS–5/15	Dec 68 (TS 121) Mar 70 (TS 132)		Jul 64 (TS 50)	
Chief Medical Technical Assistant (Justice).	GS–650	GS–8/12		Jun 60 (TS 3)		
Civil Rights Analyst	GS–160	GS–5/15	Nov 80 (TS 182)			
Civil Service Retirement Claims Examiner (Office of Personnel Management).	GS–997	GS–5/15	Dec 63 (TS 44)			X
Claims Clerk	GS–300 (GS–998)	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Claims Clerk	GS–998	GS–3/6	Nov 63 (TS 78)			
Classification Assistant	GS–203	GS–6/10	Jul 66 (TS 100) Apr 73 (TS 145) Dec 75 (TS 156) Jan 78 (TS 164)		Jan 78 (TS 128)	
Classification Clerk	GS–300 (GS–203).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Jan 78 (TS 128)	

Classification Clerk	GS–203	GS–4/6	Jul 66 (TS 100) Apr 73 (TS 145) Dec 75 (TS 156) Jan 78 (TS 164)		Jan 78 (TS 128)	
Clerk (Various Positions)	GS–300	GS–1/3	Dec 80 (TS 184) Aug 81 (TS 191) Apr 82 (TS 199)		Mar 80 (TS 151)	
Clerk/Assistant	GS–300	GS–4/6	Apr 80 (TS 176)		Mar 80 (TS 151)	
Clerk Positions	GS–963	GS–4/5	Aug 68 (TS 117) Oct 77 (TS 163) Jan 78 (TS 164)		Jan 78 (TS 128)	
Clerk-Stenographer	GS–312	GS–3/5	Sep 79 (TS 171)		Jul 79 (TS 144) Mar 81 (TS 157)	
Clerk-Typist	GS–322	GS–2/4	Sep 79 (TS 171)		Jul 79 (TS 144)	
Clinical Nurse	GS–610	GS–4/15	Mar 80 (TS 175)		Jul 68	
Clinical Psychologist	GS–180	GS–5/15	Jan 69 (TS 122) Apr 78 (TS 165)		Jul 68 (TS 85)	
Closed Microphone Reporter	GS–319	GS–6/9	Sep 79 (TS 171)		Jul 79 (TS 144) Mar 81 (TS 157)	
Clothing Designer	GS–062	GS–5/15	Dec 75 (TS 156)		Mar 61 (TS 12)	
Clothing Designer (Patterns)	GS–062	GS–7/15	Dec 75 (TS 156)		Mar 61 (TS 12)	
Coding Clerk	GS–357	GS–1/6	Aug 81 (TS 191)			
Collateral Correctional Skills, Subject-Matter Positions Requiring.			Jun 71 (TS 139)		Jun 71 (TS 105)	
Color Designer	GS–1001	GS–5/11	Apr 51			
Commissary Store Management Series.	GS–1144	GS–5/13	Jun 81 (TS 189)			
Communications Clerk	GS–300 (GS–394).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Communications Control Technician	GS–392	GS–4/11	Dec 69 (TS 130)			
Communications Equipment Operator.	GS–300	GS–3 and above.	Apr 73 (TS 145)		Aug 69 (TS 94)	
Communications Management Specialist.	GS–391	GS–11/15	Dec 69 (TS 130)		Dec 69 (TS 97)	
Communications Manager	GS–391	GS–11/15	Dec 69 (TS 130)		Dec 69 (TS 97)	
Communications Operator (Various Titles).	GS–300 (GS–392).	GS–3 and above.	Apr 73 (TS 145)		Aug 69 (TS 94)	
Communications Relay Operator (Computers).	GS–300 (GS–390).	GS–3 and above.	Apr 73 (TS 145)		Aug 69 (TS 94)	
Communications Specialist	GS–393	GS–5/15	Dec 69 (TS 130)		Dec 69 (TS 97)	
Communications Technician (General Services Administration).	GS–392	GS–5/9		Aug 65 (TS 60)		X
Communications Technician	GS–392	GS–4/11	Dec 69 (TS 130)			
Community Action Program Assistant (Community Services Administration).	GS–301	GS–5/7		Dec 68 (TS 89)		X
Community Action Program Field Representative (Community Services Administration).	GS–301	GS–9/15		Dec 68 (TS 89)		X
Community Action Program Specialist (Community Services Administration).	GS–301	GS–9/15		Dec 68 (TS 89)		X

Community Living Guidance Specialist or Supervisor (Interior).	GS–301	GS–7/13		Feb 69 (TS 89)		X
Community Planner	GS–020	GS–5/15	Apr 74 (TS 150)			
Compliance Inspection and Support Series.	GS–1802	GS–4/7	Oct 80 (TS 180)			
Computer Assistant	GS–335	GS–5/9	Feb 80 (TS 174) Aug 82 (TS 201)		Jul 82 (TS 169)	
Computer Clerk	GS–335	GS–2/4	Feb 80 (TS 174) Aug 82 (TS 201)		Jul 82 (TS 169)	
Computer Equipment Analyst	GS–334	GS–5/15	Mar 81 (TS 186)			
Computer Operation Series	GS–332	GS–2/13	Dec 83 (TS 206)		Feb 84 (TS 173)	
Computer Programer	GS–334	GS–5/15	Mar 81 (TS 186)			
Computer Programer Analyst	GS–334	GS–5/15	Mar 81 (TS 186)			
Computer Scientist	GS–1550	GS–5/15	May 77 (TS 162)			
Computer Specialist	GS–334	GS–5/15	Mar 81 (TS 186)			
Computer Systems Analyst	GS–334	GS–5/15	Mar 81 (TS 186)			
Computer Systems Programer	GS–334	GS–5/15	Mar 81 (TS 186)			
Conservation Agronomist	GS–471	GS–9/15	Dec 68 (TS 121)		Apr 61 (TS 13)	
Construction Analyst	GS–828	GS–5/13	Jan 66 (TS 96) Dec 75 (TS 156)		Jan 66 (TS 64)	
Construction Analyst (Federal Housing Administration).	GS–828	GS–5/13		Mar 63 (TS 35)		X
Construction Inspection Aid	GS–809	GS–2/3	Apr 69 (TS 124)		Apr 69 (TS 92)	
Construction Inspector	GS–809	GS–4/9	Apr 69 (TS 124)		Apr 69 (TS 92)	
Construction Representative	GS–809	GS–9 and above.	Apr 69 (TS 124)		Apr 69 (TS 92)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Consumer Safety Inspector (Health and Human Services).	GS–1862	GS–4/12		May 74 (TS 113)		
Consumer Safety Officer (Health and Human Services).	GS–696	GS–5/15		Jun 72 (TS 108)		
Contract Administrator	GS–1102	GS–5/15	Nov 83 (TS 205) Mar 84 (TS 207)			
Contract Negotiator	GS–1102	GS–5/15	Nov 83 (TS 205) Mar 84 (TS (207)			
Contract Price/Cost Analyst	GS–1102	GS–5/15	Nov 83 (TS 205) Mar 84 (TS 207)			
Contract Representative	GS–962	GS–4/11	June 71 (TS 139) Dec 79 (TS 172)		May 71 (TS 104)	
Contract Specialist	GS–1102	GS–5/15	Nov 83 (TS 205) Mar 84 (TS 207)			
Contract Termination Specialist	GS–1102	GS–5/15	Nov 83 (TS 205) Mar 84 (TS 207)			
Contractor Industrial Relations Specialist.	GS–246	GS–9/15	Dec 68 (TS 121)		Sep 64 (TS 51)	
Copier/Duplicating Equipment Operator.	GS–350	GS–1/3	Nov 78 (TS 168)		Dec 60 (TS 9)	
Correctional Institution Administration Series (Justice).	GS–006	GS–5/15		Nov. 81 (TS 195)		
Correctional Officer	GS–007	GS–6/13	May 71 (TS 138) Jan 73 (TS 144) Feb 77 (TS 161)		May 71 (TS 104)	

Correctional Treatment Specialist (Justice, D.C. Govt)	GS–101	GS–5/15		Mar 69 (TS 91)		X
Corrective Therapist (Veterans Administration)	GS–635	GS–6/15		May 68 (TS 83)		X
Corrective Therapist	GS–635	GS–5/12	Dec 69 (TS 130)			
Corrective Therapy Assistant	GS–636	GS–4/6	Aug 69 (TS 127)		May 72 (TS 107)	
Correspondence Clerk (Veterans Administration)	GS–309	GS–5/11		May 62 (TS 26)		X
Correspondence Clerk	GS–300 (GS–309).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Cotton Technologist	GS–1384	GS–5/15	Dec 68 (TS 121)			
Cotton Technologist (Agriculture)	PES No. 2049 (GS–1384).	GS–5/15		May 56		X
Counseling Psychologist	GS–180	GS–5/15	Jan 69 (TS 122) Apr 78 (TS 165)		Jul (TS 85)	
Counselor (Employment) (Labor)	GS–101	GS–5/15		Dec 68 (TS 89)		X
Criminal Investigator	GS–1810/ GS–1811.	GS–5/15	Dec 68 (TS 121)		Jul 64 (TS 50)	
Criminal Investigator/Supervisory Criminal Investigator (Treasury)	GS–1811	GS–5/15		Apr 78 (TS 131)	Mar 78 (TS 130)	
Criminal Investigator/Supervisory Criminal Investigator (Defense Investigative Service)	GS–1811	GS–5/15		May 74 (TS 113)		
Crop Insurance Administration Series (Agriculture)	GS–1161	GS–5/15		Nov 81 (TS 195)		
Crop Insurance Underwriting Series (Agriculture)	GS–1162	GS–5/13		Nov 81 (TS 195)		

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Cryptanalyst	GS–1541	GS–1/2 GS–3/7.	Dec 75 (TS 156)			
Cryptographic Equipment Operator	GS–300 (GS–388).	GS–3 and above.	Apr 73 (TS 145)		Aug 69 (TS 94)	
Customs Aid (Treasury)	GS–1897	GS–4/9		Dec 63 (TS 44)		
Custom Entry Officer (Treasury)	GS–1894	GS–5/14		Oct 70 (TS 102)		
Customs Inspector (Treasury)	GS–1890	GS–5 and above		Feb 77 (TS 124)	Feb 77 (TS 124	
Customs Liquidator (Drawback), (Protest Reviewer) (Treasury)	GS–1894	GS–5/15		Oct 70 (TS 102)		
Customs Patrol Officer (Treasury)	GS–1884	GS–5/15		Oct 80 (TS 155)	Oct 80 (TS 155)	
Customs Warehouse Officer (Treasury).	GS–1895	GS–4/7		Mar 73 (TS 109)		X
Cytology Technician	GS–646	GS–4/12	May 68 (TS 114) Dec 75 (TS 156)		May 68 (TS 83) May 77	X
Dairy Scientist	GS–487	GS–5/15	Jan 83 (TS 203)			
Data Transcriber	GS–356	GS–114	May 79 (TS 170)		Feb 76 (TS 117) Nov 76 (TS 121) May 77	
Data Transcriber Supervisor	GS–356		May 79 (TS 170)		Feb 76 (TS 117) Nov 76 (TS 121) May 77	
Dental Aid	GS–681	GS–1	Dec 79 (TS 172) Apr 80 (TS 177)		Dec 79 (TS 148)	

Dental Assistant	GS–681	GS–2/5	Dec 79 (TS 172) Apr 80 (TS 177)		Dec 79 (TS 148)	
Dental Assistant (Expanded Function).	GS–681	GS–5/6	Dec 79 (TS 172) Apr 80 (TS 177)		Dec 79 (TS 148)	
Dental Hygiene Series	GS–682	GS–4/8	Mar 82 (TS 198)			
Dental Laboratory Aid	GS–683	GS–1/3	Jun 71 (TS 139)		Jun 71 (TS 105)	
Dental Laboratory Technician	GS–683	GS–4/9	Jun 71 (TS 139)		Jun 71 (TS 105)	
Dental Officer	GS–680	GS–11/15	May 71 (TS 138) Dec 75 (TS 156)		Jul 66 (TS 68)	
Dental Officer (specialized fields)	GS–680	GS–13/15	May 71 (TS 138) Dec 75 (TS 156)		Jul 66 (TS 68)	
Department Manager (with appropriate prefix).	GS–1144	GS–4/11	May 79 (TS 170)			
Deputy U.S. Marshal (Justice)	GS–082	GS–5/13		Jun 73 (TS 111)		X
Design Patent Examiner (Commerce)	GS–1226	GS–5/13		Dec 68 (TS 89)		
Detective	GS–083	GS–6/7	Jun 74 (TS 151)		Jul 68 (TS 85)	
Diagnostic Radiologic Technician/ Technologist.	GS–647	GS–3 and above.	May 79 (TS 170)		Jun 78 (TS 133)	
Dietetic Assistant (Veterans Administration).	GS–699	GS–5/7		Mar 69 (TS 91)		X
Dietitian	GS–630	GS–5/15	Dec 80 (TS 183)		Mar 61 (TS 12)	
Dietitian (Veterans Administration)	GS–630	GS–5/15		Mar 69 (TS 91)		X
Director, Insuring Office (Federal Housing Administration).	GS–301	GS–13/15		Jun 62 (TS 27)		X
Document Analyst	GS–1397	GS–5/15	Jun 65 (TS 90)			
Domiciliary Officer (Veterans Administration).	GS–301	GS–7/13		Feb 61 (TS 11)		

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Dry Cleaning Plant Manager	GS–1658	GS–5/12	May 64 (TS 82)		Mar 61 (TS 12)	
Dry Cleaning Plant Superintendent	GS–1658	GS–5/12	May 64 (TS 82)		Mar 61 (TS 12)	
Duplication Equipment Operator	GS–350	GS–1/4	Nov 78 (TS 168)		Dec 60 (TS 9) (May 77)	
Ecologist	GS–408	GS–5/15	Nov 78 (TS 168)		Oct 78 (TS 136)	
Economist	GS–110	GS–5/15	Dec 68 (TS 121)		May 63 (TS 37)	
Editorial Assistant	GS–1087	GS–5/9	Jun 74 (TS 151)		Jan 75 (TS 114)	
Editorial Clerk	GS–300 (GS–1087).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Editorial Clerk	GS–1087	GS–2/4	Jun 74 (TS 151)		Jan 75 (TS 114)	
Education Aid	GS–1702	GS–1/4	Sep 68 (TS 118)		Sep 68 (TS 87)	
Education and Vocational Training Series.	GS–1710	GS–5/15	Dec 68 (TS 121)		Jul 66 (TS 68)	
Education Program Specialist	GS–1720	GS–5/15		Oct 82 (TS 202)		
Education Research Analyst	GS–1730	GS–5/15		Oct 82 (TS 202)		
Education Research Manager	GS–1730	GS–11/15		Oct 82 (TS 202)		
Education Services Specialist	GS–1740	GS–5/15	Oct 82 (TS 202)		Sep 68 (TS 87)	
Education Technician	GS–1702	GS–4 and above.	Sep 68 (TS 118)			
Educational Therapist	GS–639	GS–5/12	Dec 69 (TS 130)			

Educational Therapist (Academic, Commercial, Science, Fine Arts, and General) (Veterans Administration).	GS–639	GS–5/15		May 68 (TS 83)		X
Educational Therapy Assistant	GS–636	GS–4/6	Aug 69 (TS 127)		May 72 (TS 107)	
Electric Accounting Machine Operation Series.	GS–359	GS–2/12	Aug 82 (TS 201)		Dec 62 (TS 32)	
Electric Accounting Machine Project Planning Series.	GS–362	GS–5/12	Jan 82 (TS 197)		Jul 51 (TS 16) Aug 61 (TS 17)	
Electric Utility Management Specialist (Agriculture).	GS–1130	GS–9/12		Jun 65 (TS 58)		X
Electrocardiograph Technician	GS–649	GS–4/9	Sep 68 (TS 118) Apr 73 (TS 145)		Sep 68 (TS 87) May 77	
Electroencephalograph Technician	GS–649	GS–4/9	Sep 68 (TS 118) Apr 73 (TS 145)		Sep 68 (TS 87) May 77	
Electronics Technician	GS–856	GS–4/12	Mar 66 (TS 97) Dec 75 (TS 156)		Mar 66 (TS 65)	
Elementary Teacher	GS–1724	GS–5/11	Oct 82 (TS 202)			
Elementary Teaching Specialist	GS–1724	GS–5/11	Oct 82 (TS 202)			
Employee Development Assistant	GS–203	GS–6/10	Jul 66 (TS 100) Apr 73 (TS 145) Dec 75 (TS 156) Jan 78 (TS 164)		Jan 78 (TS 128)	
Employee Development Clerk	GS–300 (GS–203).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Jan 78 (TS 128)	
Employment Development Clerk	GS–203	GS–4/6	Jul 66 (TS 100) Apr 73 (TS 145) Dec 75 (TS 156) Jan 78 (TS 164)		Jan 78 (TS 128)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Employee Development Specialist	GS–200 (GS–235).	GS–5/15	Aug 78 (TS 167) Jun 80 (TS 178)		Jun 78 (TS 134)	
Employee Relations Assistant	GS–203	GS–6/10	Jul 66 (TS 100) Apr 73 (TS 145) Dec 75 (TS 156) Jan 78 (TS 164)		Jan 78 (TS 128)	
Employee Relations Clerk	GS–300 (GS–203).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Jan 78 (TS 128)	
Employee Relations Clerk	GS–203	GS–4/6	Jul 66 (TS 100) Apr 73 (TS 145) Dec 75 (TS 156) Jan 78 (TS 164)		Jan 78 (TS 128)	
Employee Relations Specialist	GS–200 (GS–230).	GS–5/15	Aug 78 (TS 167) Jun 80 (TS 178)		Jun 78 (TS 134)	
Employment Advisor (Minorities) (Schedule B Positions) (Labor).	GS–301	GS–12		Feb. 62 (TS 23)		
Employment and Vocational Guidance Supervisor (Interior).	GS–301	GS–12		Feb 69 (TS 89)		X
Employment Assistance Technician Specialist, or Officer (Interior).	GS–301	GS–7/14		Feb 69 (TS 89)		X
Employment Guidance Specialist (Interior).	GS–301	GS–7/13		Feb 69 (TS 89)		X
Engineer (all professional positions)	GS–800	GS–5/15	Mar 82 (TS 198)			
Engineering Aid	GS–802	GS–1/3	Aug 69 (TS 127)		Aug 69 (TS 94) May 77	

Engineering Series (Interpretive Memorandum).	GS–800		Apr 76 (TS 159)			
Engineering Draftsman	GS–818	GS–1/9	May 71 (TS 138)		May 71 (TS 104) May 77	
Engineering Psychologist	GS–180	GS–5/15	Jan 69 (TS 122) Apr 78 (TS 165)		Jul 68 (TS 85)	
Engineering Technician	GS–802	GS–4/12	Aug 69 (TS 127)		Aug 69 (TS 94) May 77	
Entomologist	GS–414	GS–5/15	Dec 68 (TS 121)		Sep 64 (TS 51)	
Environmental Health Aid	GS–698	GS–1/3	Nov 69 (TS 129)		Nov 69 (TS 96)	
Environmental Health Technician	GS–698	GS–4/12	Nov 69 (TS 129)		Nov 69 (TS 96)	
Environmental Protection Specialist	GS–028	GS–5/15	Feb 77 (TS 161)		Dec 75 (TS 116)	
Equal Employment Opportunity Collateral Assignments, Subject-Matter Positions Involving.			Nov 80 (TS 182)			
Equal Employment Manager	GS–260	GS–11/15	Nov 80 (TS 182)		May 72 (TS 107)	
Equal Employment Specialist	GS–260	GS–5/15	Nov 80 (TS 182)			
Equal Opportunity Assistant	GS–361	GS–4 and above.	Nov 80 (TS 182)			
Equal Opportunity Specialist	GS–360	GS–5/15	Nov 80 (TS 182)		May 72 (TS 107)	
Equipment Operation Series (appropriate titles).	GS–350	GS–1/4	Nov 78 (TS 168)		Dec 60 (TS 9) May 77	
Equipment Specialist	GS–1670	GS–5/15	Jul 64 (TS 83) Dec 75 (TS 156)		Jul 64 (TS 50)	
Examiner Positions	GS–963	GS–4/9	Aug 68 (TS 177) Oct 77 (TS 163) Jan 78 (TS 164)		Jan 68 (TS 128)	
Exhibits Specialist	GS–1010	GS–5/11	Jul 60 (TS 43)		Jul 60 (TS 4)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Facility Management Officer	GS–1640	GS–5/15	Jun 73 (TS 147)		Jun 73 (TS 111)	
Facility Management Specialist	GS–1640	GS–5/15	Jun 73 (TS 147)		Jun 73 (TS 111)	
Facility Manager	GS–1640	GS–5/15	Jun 73 (TS 147)		Jun 73 (TS 111)	
Farm Credit Examiner	GS–570	GS–5/15	Apr 69 (TS 124)		Apr 69 (TS 92)	
Farm Credit Examining Officer	GS–570	GS–12/15	Apr 69 (TS 124)		Apr 69 (TS 92)	
FDIC Auditor (Federal Deposit Insurance Corporation).	GS–570	GS–5/15		Nov 63 (TS 43)		X
Federal Protective Officer (Interim) (GSA).	GS–083	GS–4/5		May 78	May 78	
Fiber Technologist	GS–1384	GS–5/15	Dec 68 (TS 121)			
Fiber Technologist	(PES No. 2046) GS–1384.	GS–5/15		May 56		X
Financial Administration and Program Series.	GS–501	GS–5/15	Apr 82 (TS 199)			
Financial Analyst	GS–1160	GS–9/12	Dec 68 (TS 121) Sep 73 (TS 148)		Jul 66 (TS 68)	
Financial Assistant	GS–1160	GS–5/7	Dec 68 (TS 121) Sep 73 (TS 148)		Jul 66 (TS 68)	
Financial Clerical and Assistance Series (See Miscellaneous Clerk and Assistant, GS–300, and Accounting Clerk, GS–500).	GS–503					

Financial Economist	GS–110	GS–9/15	Dec 68 (TS 121)		May 63 (TS 37)	
Financial Manager	GS–505	GS–12/15	Dec 68 (TS 121)		Jul 63 (TS 39)	
Finger Print Clerk	GS–072	GS–2/6	Apr 57 (TS 21)			
Fingerprint Examiner	GS–072	GS–7/8	Apr 57 (TS 21)			
Fire Chief	GS–081	GS–6/12	May 79 (TS 170) Mar 80 (TS 175) Mar 82 (TS 198)		May 71 (TS 104)	
Fire Communication Operator	GS–081	GS–4/7	May 79 (TS 170) Mar 80 (TS 175) Mar 82 (TS 198)		May 71 (TS 104)	
Firefighter (Appropriate Specializations).	GS–081	GS–3/5	May 79 (TS 170) Mar 80 (TS 175) Mar 82 (TS 198)		May 71 (TS 104)	
Fire Protection Inspector	GS–081	GS–5/9	May 79 (TS 170) Mar 80 (TS 175) Mar 82 (TS 198)		May 71 (TS 104)	
Fire Protection Specialist	GS–081	GS–5/13	May 79 (TS 170) Mar 80 (TS 175) Mar 82 (TS 198)		May 71 (TS 104)	
Fishery Biologist (General)	GS–482	GS–5/15	Dec 68 (TS 121)		Apr 62 (TS 25)	
Fishery Biologist (Management)	GS–482	GS–9/15	Dec 68 (TS 121)		Apr 62 (TS 25)	
Fishery Biologist (Research)	GS–482	GS–9/15	Dec 68 (TS 121)		Apr 62 (TS 25)	
Fishery Marketing Specialist	GS–1147	GS–7/14	Jul 75 (TS 154)			
Flight Data Aid (Federal Aviation Administration).	GS–301	GS–5/6		Feb 65 (TS 55)		X
Flight Engineer	GS–2181	GS–5/15	Apr 68 (TS 113)		Apr 68 (TS 82)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Flight Instructor (Aircraft)	GS–2181	GS–9/15	Apr 68 (TS 113)		Apr 68 (TS 82)	
Flight Instructor (Fixed Wing)	GS–2181	GS–9/15	Apr 68 (TS 113)		Apr 68 (TS 82)	
Flight Instructor (Helicopter)	GS–2181	GS–9/15	Apr 68 (TS 113)		Apr 68 (TS 82)	
Flight Test Pilot	GS–2181	GS–9/15	Apr 68 (TS 113)		Apr 68 (TS 82)	
Food Assistance Program Specialist (Agriculture).	GS–120	GS–5/15		Jun 72 (TS 108)		X
Food Inspector (Agriculture)	GS–1863	GS–5/11		May 77 (TS 127)	May 77 (TS 127)	
Food Inspector (Processed Products) (Agriculture).	GS–1863	GS–5/11		May 77 (TS 127)	May 77 (TS 127)	
Food Inspector (Slaughter) (Agriculture).	GS–1863	GS–5/10		May 77 (TS 127)	May 77 (TS 127)	
Food Management Specialist (Veterans Administration).	GS–301	GS–8/11		Jul 65 (TS 59)		X
Food Technologist	GS–1382	GS–5/15	Dec 68 (TS 121)			
Foreign Affairs Analyst	GS–130	GS–5	Dec 68 (TS 121)			
Foreign Affairs Officer	GS–130	GS–7/15	Dec 68 (TS 121)			
Foreign Exchange Security Specialist or Officer.	GS–080	GS–5/15	Dec 68 (TS 121)		Jul 60 (TS 4)	
Forest Products Technologist	GS–1380	GS–5/15	Dec 68 (TS 121)			
Forester (all specializations)	GS–460	GS–5/15	Feb 80 (TS 174)			
Forestry Aid	GS–462	GS–1/3	May 73 (TS 146)		Mar 73 (TS 109)	

Forestry Technician	GS–462	GS–4/12	May 73 (TS 146)		Mar 73 (TS 109)	
Forestry Technician (Smokejumper)	GS–462	GS–5/7	May 73 (TS 146) Aug 75 (TS 155)			
Freight Classification Assistant	GS–2131	GS–4/6	May 79 (TS 170)			
Freight Classification Specialist	GS–2131	GS–7/12	May 79 (TS 170)			
Freight Rate Assistant	GS–2131	GS–4/6	May 79 (TS 170)			
Freight Rate Clerk	GS–300 (GS–2131).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Freight Rate Specialist	GS–2131	GS–7/12	May 79 (TS 170)			
Funeral Director	GS–050	GS–6/9	Apr 63 (TS 72) Dec 75 (TS 156)			
Futures Trading Specialist (Interim) (Commodity Futures Trading Commission).	GS–1101	GS–5/15		Feb 75		
General Clerical and Administrative Series Explanatory Note.	GS–301	GS–5/15	Apr 80 (TS 176)			
General Biological Science Series	GS–401	GS–5/15	Dec 68 (TS 121)			
General Biological Science Series (Veterans Administration).	GS–401	GS–5/15		Aug 68 (TS 86)		
General Education and Training Series.	GS–1701	GS–5/15	Dec 68 (TS 121)		Sep 68 (TS 87)	
General Facilities and Equipment Series.	GS–1601	GS–2/15	Jun 73 (TS 147)		Jun 73 (TS 111)	
General Health Science Series	GS–601	GS–5/15	Dec 68 (TS 121) Mar 70 (TS 132)		Jul 65 (TS 59)	
General Inspection, Investigation and Compliance Series.	GS–1801	GS–5/15	Oct 80 (TS 180)			
Geneticist	GS–440	GS–5/15	Dec 68 (TS 121)		Jun 71 (TS 105)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Geodesist	GS–1372	GS–5/15	Jun 71 (TS 139)		Jun 71 (TS 105)	
Geodetic Aid	GS–1374	GS–2/4	Dec 65 (TS 95) Dec 75 (TS 156)		Dec 65 (TS 63)	
Geodetic Technician	GS–1374	GS–5/12	Dec 65 (TS 95) Dec 75 (TS 156)		Dec 65 (TS 63)	
Geographer	GS–150	GS–5/15	Dec 68 (TS 121)		Sep 63 (TS 41)	
Geologist	GS–1350	GS–5/15	Dec 68 (TS 121) Dec 75 (TS 156)		Dec 66 (TS 71)	
Geophysicist	GS–1313	GS–5/15	Dec 68 (TS 121)			
Grants Management Officer/Specialist (Health and Human Services).	GS–1101	GS–5/15		Aug 68		
Guard	GS–085	GS–2/5	Dec 75 (TS 156)		Jul 68 (TS 85)	
Guard Supervisor	GS–085	GS–4/9	Dec 75 (TS 156)		Jul 68 (TS 85)	
Guidance Counselor	GS–1740	GS–9/11	Oct 82 (TS 202)			
Guide	GS–090	GS–1 and above.	Aug 82 (TS 201)			
Guide, Supervisory	GS–090	GS–5 and above.	Aug 82 (TS 201)			
Health Aid	GS–699	GS–1/3	Sep 68 (TS 118)		Sep 68 (TS 87)	
Health Physicist	GS–1306	GS–5/15	Dec 68 (TS 121) Mar 70 (TS 132)			
Health System Administration Series	GS–670	GS–7/15	Jun 81 (TS 189)			

Health System Specialist Series	GS–671	GS–7/15	Jun 81 (TS 189)			
Health Technician	GS–699	GS–4/9	Sep 68 (TS 118)		Sep 68 (TS 87)	
Hearings and Appeals	GS–930	GS–9/15	Jun 74 (TS 151)			
Heart-Lung Machine Technician	GS–649	GS–4/9	Sep 68 (TS 118) Apr 73 (TS 145)		Sep 68 (TS 87) May 77	
Helicopter Pilot	GS–2181	GS–9/15	Apr 68 (TS 113)		Apr 68 (TS 82)	
Hemodialysis Technician	GS–649	GS–4/9	Sep 68 (TS 118) Apr 73 (TS 145)		Sep 68 (TS 87) May 77	
Highway Safety Specialist (Transportation).	GS–2125	GS–5/15		Oct 80 (TS 154)		
Histopathology Technician	GS–646	GS–4/12	May 68 (TS 114) Dec 75 (TS 156)		May 68 (TS 83) May 77	
Historian	GS–170	GS–5/15	Dec 68 (TS 121)		Mar 62 (TS 24) Dec 63 (TS 44)	
Home Economist	GS–493	GS–5/15	Dec 68 (TS 121)			
Horticulturist (All Specializations Except Those Primarily Concerned With the Maintenance of Parks and Grounds.	GS–437	GS–5/15	Dec 68 (TS 121)			
Horticulturist (Fruits; Vegetables; Ornamentals; Special Crops; Management) (Agriculture).	PES No. 2038. (GS–437).	GS–5/15		Aug 59		
Hospital Housekeeping Assistant	GS–673	GS–5/15	Nov 78 (TS 168)		Aug 67 (TS 77)	
Hospital Housekeeping Officer	GS–673	GS–5/15	Nov 78 (TS 168)		Aug 67 (TS 77)	
Hospital Housekeeping Program Specialist.	GS–673	GS–5/15	Nov 78 (TS 168)		Aug 67 (TS 77)	
Housing Division Director (Housing and Urban Development).	GS–340	GS–14/15		Oct 80 (TS 154)	Oct 80 (TS 154)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Housing Management Assistant	GS–1173	GS–5/7	Sep 81 (TS 192)			
Housing Management Specialist	GS–1173	GS–9/15	Sep 81 (TS 192)			
Housing Manager	GS–1173	GS–9/15	Sep 81 (TS 192)			
Hydrologic Aid	GS–1316	GS–1/3	May 71 (TS 138)		May 71 (TS 104)	
Hydrologic Technician	GS–1316	GS–4/12	May 71 (TS 138)		May 71 (TS 104)	
Hydrologist	GS–1315	GS–5/15	Aug 69 (TS 127)		Nov 63 (TS 43)	
Hyperbaric Chamber Technician	GS–649	GS–4/9	Sep 68 (TS 118) Apr 73 (TS 145)		Sep 68 (TS 87) May 77	
Illustrator	GS–1020	GS–5/12	Sep 79 (TS 171)		Jun 79 (TS 143)	
Immigration Examiner (Justice)	GS–1816	GS–4 and above.		Aug 69 (TS 94)		X
Immigration Inspector (Justice)	GS–1816	GS–4 and above.		Aug 69 (TS 94)		X
Import Specialist (Treasury)	GS–1889	GS–5/13		Apr 67 (TS 74)		
Industrial Engineering Technician	GS–895	GS–4/12	Mar 67 (TS 105)			
Industrial Hygiene and Safety Manager.	GS–690	GS–11/15	Oct 80 (TS 181)			
Industrial Hygienist	GS–690	GS–5/15	Oct 80 (TS 181)		Dec 64 (TS 53)	
Industrial Property Clearance Specialist.	GS–1103	GS–5/15	Jun 70 (TS 134)		Sep 69 (TS 95)	
Industrial Property Management Specialist.	GS–1103	GS–5/15	Jun 70 (TS 134)		Sep 69 (TS 95)	

Industrial Security Specialist or Officer.	GS–080	GS–5/15	Dec 68 (TS 121)		Jul 60 (TS 4)	
Industrial Specialist	GS–1150	GS–5/15	Dec 68 (TS 121)		Mar 61 (TS 12)	
Industrial Training Advisor (Minorities) (Labor).	GS–301	GS–11/12		Feb 62 (TS 23)		
Industry Economist	GS–110	GS–9/15	Dec 68 (TS 121)		May 63 (TS 37)	
Information Receptionist	GS–300 (GS–304).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Inhalation Therapy Technician	GS–649	GS–4/9	Sep 68 (TS 118) Apr 73 (TS 145)		Sep 68 (TS 87) May 77	
Instructional Systems Specialist	GS–1750	GS–5/15	Oct 82 (TS 202)			X
Insurance Accounts Clerk (Veterans Administration).	GS–593 (GS–530).	GS–5/14		Jul 64 (TS 50)		X
Insurance Accounts Supervisor (Veterans Administration).	GS–593 (GS–530).	GS–5/14		Jul 64 (TS 50)		X
Insurance Examiner	GS–1163	GS–5	Dec 68 (TS 121)		Apr 64 (TS 48)	
Insurance Examiner (Casualty)	GS–1163	GS–7/15	Dec 68 (TS 121)		Apr 64 (TS 48)	
Insurance Examiner (General)	GS–1163	GS–7/15	Dec 68 (TS 121)		Apr 64 (TS 48)	
Insurance Examiner (Marine)	GS–1163	GS–7/15	Dec 68 (TS 121)		Apr 64 (TS 48)	
Insurance Specialist (Veterans Administration).	GS–301	GS–7/12		Apr 62 (TS 25)		X
Insurance Underwriter (Life and Medical) (Veterans Administration).	GS–301	GS–5/7		Feb 65 (TS 55)		X
Intelligence Aid	GS–300 (GS–134).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Intelligence Clerk	GS–300 (GS–134).	GS–1/3	Apr 80 (TS 176)		Mar 80 (TS 151)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Intelligence Operations Specialist	GS–132	GS–5/15	Dec 68 (TS 121)		May 60 (TS 2) Jul 60 (TS 4)	
Intelligence Research Specialist	GS–132	GS–5/15	Dec 68 (TS 121)		May 60 (TS 2) Jul 60 (TS 4)	
Interior Decorator	GS–1001	GS–5/11	Apr 51			
Internal Revenue Agent (Treasury)	GS–512	GS–9/15		May 77 (TS 127)	May 77 (TS 127)	
Internal Revenue Officer (Treasury)	GS–1169	GS–5/15		Jan 71 (TS 103)		
Internal Security Specialist or Officer.	GS–080	GS–5/15	Dec 68 (TS 121)		Jul 60 (TS 4)	
International Economist	GS–110	GS–9/15	Dec 68 (TS 121)		May 63 (TS 37)	
International Relations Officer	GS–131	GS–5/15	Dec 68 (TS 121)			
International Trade Specialist	GS–1140	GS–9/15	Dec 68 (TS 121)		Nov 63 (TS 43)	
Interpreter	GS–1040	GS–5/15	Mar 80 (TS 175)			
Investigator	GS–1810 (GS–1811).	GS–5/15	Dec 68 (TS 121)		Jul 64 (TS 50)	
Investment Company Examiner	GS–570	GS–5/15	Apr 69 (TS 124)		Apr 69 (TS 92)	
Investment Company Examining Officer.	GS–570	GS–12/15	Apr 69 (TS 124)		Apr 69 (TS 92)	
Irrigation System Operator (Interior)	GS–459	GS–2/13		Jun 70 (TS 101)		
Job Corps Conservation Center Director (Labor).	GS–340	GS–12		Jun 66 (TS 67)		X

Job Corps Program Manager (Residential Living and Training) (Labor).	GS–340	GS–12		Jun 66 (TS 67)		X
Labor Economist	GS–110	GS–9/15	Dec 68 (TS 121)		May 63 (TS 37)	
Labor Relations Specialist	GS–200 (GS–233).	GS–5/15	Aug 78 (TS 167) Jun 80 (TS 178)		Jun 78 (TS 134)	
Labor Management Relations Examiner (National Labor Relations Board).	GS–244	GS–5/15		Dec 68 (TS 89)		X
Labor Management Reports Analyst (Labor).	GS–301	GS–5/12		Oct 70 (TS 102)		X
Land Law Examiner (Interior)	GS–965	GS–5/12		Jun 62 (TS 27)		X
Landscape Architect	GS–807	GS–5/15	Dec 68 (TS 121)		Mar 63 (TS 35)	
Land Surveyor	GS–1373	GS–5/15	Jan 79 (TS 169)		Dec 78 (TS 138)	
Language Specialist	GS–1040	GS–5/15	Oct 81 (TS 193)			
Laundry and Dry Cleaning Plant Manager.	GS–1658	GS–5/12	May 64 (TS 82)		Mar 61 (TS 12)	
Laundry and Dry Cleaning Plant Superintendent.	GS–1658	GS–5/12	May 64 (TS 82)		Mar 61 (TS 12)	
Laundry Plant Manager	GS–1658	GS–5/12	May 64 (TS 82)		Mar 61 (TS 12)	
Laundry Plant Superintendent	GS–1658	GS–5/12	May 64 (TS 82)		Mar 61 (TS 12)	
Lead Social Services Aid	GS–186	GS–3/5	Oct 82 (TS 202)			
Lead Social Services Assistant	GS–186	GS–6/7	Oct 82 (TS 202)			
Legal Clerk and Technician Series	GS–986	GS–1/11	Apr 82 (TS 199)			
Legal Instruments Examining Clerk	GS–300 (GS–963).	GS–1/3	Apr 80 (TS 176)		Mar 80 (TS 151)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Legal Instruments Examining: Clerk Positions.	GS–963	GS–4/5	Aug 68 (TS 117) Oct 77 (TS 163) Jan 78 (TS 164)		Jan 78 (TS 128)	
Legal Instruments Examining: Examiner Positions.	GS–963	GS–4/9	Aug 68 (TS 117) Oct 77 (TS 1o3) Jan 78 (TS 164)		Jan 78 (TS 128)	
Librarian	GS–1410	GS–7/15	Dec 68 (TS 121)		Mar 66 (TS 65)	
Librarian (Veterans Administration)	GS–1410	GS–7/15		Jan 71 (TS 103)		X
Librarian Trainee	GS–1410	GS–5 (Special provision).	Dec 68 (TS 121)		Mar 66 (TS 65)	
Library Aid	GS–300 (GS–1411).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Library Director (with specializations as appropriate).	GS–1410	GS–7/15	Dec 68 (TS 121)		Mar 66 (TS 65)	
Library Technician	GS–1411	GS–4/7	Apr 73 (TS 145) Dec 75 (TS 156) Jan 78 (TS 164)		Jan 78 (TS 128) May 77	
Licensed Practical Nurse	GS–621	GS–1/8	Oct 70 (TS 135)		Oct 70 (TS 102) May 77	
Licensed Practical Nurse (Veterans Administration).	GS–621	GS–3/6		Mar 73 (TS 109)		
Licensed Vocational Nurse (Veterans Administration).	GS–621	GS–3/6		Mar 73 (TS 109)		
Livestock Inspector (Agriculture)	GS–704	GS–5/7		Sept 79 (TS 147)		

Loan Assistant	GS–1165	GS–5/7	Jan 62 (TS 59) Dec 75 (TS 156)		Jan 62 (TS 22)	
Loan Servicing Assistant (Interim) (Small Business Administration).	GS–1101	GS–4/7		Mar 77		
Loan Specialist (Appropriate Specialization).	GS–1165	GS–9/15	Jan 62 (TS 59) Dec 75 (TS 156)		Jan 62 (TS 22)	
Logistics Management Specialist	GS–346	GS–5/15	Jun 72 (TS 143) May 73 (TS 146)			
Mail and File Clerk	GS–300 (GS–305).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Mail Processing Equipment Operator	GS–350	GS–1/4	Nov 78 (TS 158)		Dec 60 (TS 9) May 77	
Management Agronomist	GS–471	GS–9/15	Dec 68 (TS 121)		Apr 61 (TS 13)	
Management Analysis Officer	GS–343	GS–5/15	Feb 72 (TS 141)		May 68 (TS 83)	
Management Analyst	GS–343	GS–5/15	Feb 72 (TS 141)		May 68 (TS 83)	
Management, Administrative, Program Positions, Various.	GS–301	GS–5/15	Apr 80 (TS 176)			
Management Assistant	GS–344	GS–4/11	Apr 73 (TS 145)		Mar 68 (TS 81)	
Management Clerk	GS–344	GS–1/3	Apr 73 (TS 145)		Mar 68 (TS 81)	
Manpower Analyst (Labor)	GS–140	GS–5/15		Dec 68 (TS 89)		X
Manpower Development Specialist	GS–142	GS–5/15	Apr (TS 153)		Apr 75 (TS 115)	
Manpower Development Specialist (Labor).	GS–142	GS–5/15		Dec 68 (TS 89)	Apr 75 (TS 115)	
Manual Arts Therapist	GS–637	GS–5/12	Dec 69 (TS 130)			
Manual Arts Therapist (All specializations) (Veterans Administration).	GS–637	GS–5/15		May 68 (TS 83)		X
Manual Arts Therapy Assistant	GS–636	GS–4/6	Aug 69 (TS 127)		May 72 (TS 107)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Marine Cargo Assistant	GS–2161	GS–5	Sep 61 (TS 55) Dec 75 (TS 156)		Sep 61 (TS 19)	
Marine Enforcement Agent (Interim) (Commerce).	GS–1812	GS–5/14		May 76		
Marine Information Specialist	GS–1361	GS–5/15	Dec 62 (TS 69) Dec 75 (TS 156)		Dec 62 (TS 32)	
Marine Cargo Specialist	GS–2161	GS–7/12	Sep 61 (TS 55) Dec 75 (TS 156)		Sep 61 (TS 19)	
Mathematical Statistician	GS–1529	GS–5/15	Dec 68 (TS 121)		Oct 61 (TS 19)	
Mathematician	GS–1520	GS–5/15	Dec 68 (TS 121)		Sep 65 (TS 61)	
Mathematics Aid	GS–1521	GS–1/4	Jul 67 (TS 108) Dec 75 (TS 156)		Jul 67 (TS 76)	
Mathematics Technician	GS–1521	GS–5/11	Jul 67 (TS 108) Dec 75 (TS 156)		Jul 67 (TS 76)	
Matron	GS–1666	GS–2/7	May 64 (TS 82)			
Mediator (Railroads and Airlines) (National Mediation Board).	GS–241	GS–11/15		Jul 64 (TS 50)		X
Medical Clerk	GS–300 (GS–679).	GS–1/3	Apr 80 (TS 176)		Mar 80 (TS 151)	
Medical Clerk	GS–679	GS–4/6	May 79 (TS 170)			
Medical Illustrator	GS–1020	GS–7/12	Sep 79 (TS 171)		Jun 79 (TS 143)	
Medical Intern and Resident (St. Elizabeths).				Sep 63 (TS 41)		

Medical Laboratory Aid	GS–645	GS–1/3	May 68 (TS 114) Jan 73 (TS 144) Dec 75 (TS 156)		Feb 70 (TS 98)	
Medical Machine Aid	GS–649	GS–1/3	Sep 68 (TS 118) Apr 73 (TS 145)		Sep 68 (TS 87) May 77	
Medical Machine Technician	GS–649	GS–4/9	Sep 68 (TS 118) Apr 73 (TS 145)		Sep 68 (TS 87) May 77	
Medical Officer (All Positions)	GS–602	GS–11/15	Sep 63 (TS 77) Jan 73 (TS 144) Jun 74 (TS 151) Dec 75 (TS 156)		May 63 (TS 37)	
Medical Record Librarian	GS–669	GS–5/14	Dec 71 (TS 140)		Apr 63 (TS 36) Nov 65 (TS 62)	
Medical Record Librarian (Veterans Administration).	GS–669	GS–5/14		Oct 63 (TS 42)		X
Medical Record Technician	GS–675	GS–4/7	Jun 71 (TS 139)		Jun 71 (TS 105)	
Medical Technical Assistant (Justice)	GS–650	GS–6/8		Jun 60 (TS 3)		
Medical Technician (All Specializations).	GS–645	GS–4/12	May 68 (TS 114) Jan 73 (TS 144) Dec 75 (TS 156)		Feb 70 (TS 98)	
Medical Technologist	GS–644	GS–5 and above.	Jun 84 (TS 208)			
Messenger	GS–302	GS–1/3	Oct 80 (TS 180)		Jan 62 (TS 22) May 77	
Messenger (Motor Vehicle Operator)	GS–302	GS–1/3	Oct 80 (TS 180)		Jan 62 (TS 22) May 77	
Metallurgist	GS–1321	GS–5/15	Dec 68 (TS 121)			
Meteorological Aid	GS–1341	GS–1/3	Jun 71 (TS 139)		Jun 71 (TS 104)	
Meteorological Technician	GS–1341	GS–4/11	Jun 71 (TS 139)		Jun 71 (TS 104)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Meteorologist	GS–1340	GS–5/15	Feb 72 (TS 141) Jun 72 (TS 143)		May 72 (TS 107)	
Microbiologist	GS–403	GS–5/15	Dec 68 (TS 121)		Aug 63 (TS 40)	
Microform Equipment Operator	GS–350	GS–1/4	Nov 78 (TS 168)		Dec 60 (TS 9) May 77	
Military Pay Clerk	GS–300 (GS–545).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Military Pay Clerk	GS–500 (GS–545).	GS–4/6	Dec 80 (TS 184)		Mar 68 (TS 81) May 77	
Military Personnel Clerk	GS–300 (GS–204).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Military Personnel Clerk and Technician Series.	GS–204	GS–5/12	Oct 81 (TS 194)			
Military Personnel Management Positions.	GS–205	GS–5/15	Apr (TS 137)		May 71 (TS 104)	
Mine Safety and Health Inspection/ Specialist.	GS–1822	GS–5/15		Aug 81 (TS 191)	Aug 81 (TS 191)	
Miscellaneous Clerk and Assistant	GS–300 (GS–303).	GS–1/3	Apr 80 (TS 176)		Mar 80 (TS 151)	
Mortuary Officer	GS–050	GS–11/13	Apr 63 (TS 72) Dec 75 (TS 156)			
Motion Picture Production Specialist	GS–1071	GS–5/14	Dec 68 (TS 121) Apr 75 (TS 153)		Nov 62 (TS 21)	

Motor Carrier Safety Specialist (Transportation).	GS–2123	GS–5/15		Oct 80 (TS 154)		
Motor Vehicle Dispatcher	GS–2151	GS–2/5	Jan 63 (TS 70)		Jan 63 (TS 33)	
Multi-Group Qualification Standard for Administrative Positions.	GS–301	GS–5/15	Apr 80 (TS 176)		Mar 80 (TS 151)	
Museum Aid	GS–1016	GS–2/4	Apr 73 (TS 145)		Jan 62 (TS 22)	
Museum Curator (appropriate subject area).	GS–1015	GS–5/15	Dec 68 (TS 121)		Apr 62 (TS 25)	
Museum Specialist	GS–1016	GS–9/12	Apr 73 (TS 145)		Jan 62 (TS 22)	
Museum Technician	GS–1016	GS–5/7	Apr 73 (TS 145)		Jan 62 (TS 22)	
Music Specialist	GS–1051	GS–5/15	Apr 70 (TS 133)		Apr 70 (TS 100)	
National Bank Examiner (Schedule B Positions) (Treasury).	GS–570			Oct 62 (TS 30)		X
Navigator	GS–2181	GS–5/15	Apr 68 (TS 113)		Apr 68 (TS 82)	
Nuclear Medicine Aid	GS–642	GS–1/3	Apr 73 (TS 145)		Dec 71 (TS 106)	
Nuclear Medicine Technician	GS–642	GS–4/12	Apr 73 (TS 145)		Dec 71 (TS 106)	
Nuclear Medicine Technologist (Veterans Administration).	GS–601	GS–5/11		Mar 73 (TS 109)		
Nurse	GS–610	GS–4, 5/15	Mar 80 (TS 175)			
Nurse Anesthetist	GS–610	GS–9/15	Mar 80 (TS 175)			
Nurse Consultant	GS–610	GS–9/15	Mar 80 (TS 175)			
Nurse Educator	GS–610	GS–9/15	Mar 80 (TS 175)			
Nurse Midwife	GS–610	GS–9/15	Mar 80 (TS 175)			
Nurse Practitioner	GS–610	GS–9/15	Mar 80 (TS 175)			
Nurse Specialist	GS–610	GS–9/15	Mar 80 (TS 175)			

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Nurse Aid/Assistant	GS–621	GS–1/6	Aug 81 (TS 191)	Oct 70 (TS 102)		
Nursing Aid (Veterans Administration).	GS–621	GS–1/8		Oct 70 (TS 102)		
Nursing Assistant (Veterans Administration).	GS–621	GS–1/8		Oct 70 (TS 102)		
Nutritionist	GS–630	GS–5/15	Dec 80 (TS 183)			
Occupational Health Nurse	GS–610	GS–4, 5/15	Mar 80 (TS 175)			
Occupational Therapist	GS–631	GS–5/12	Nov 69 (TS 129)		Nov 69 (TS 96)	
Occupational Therapist (Veterans Administration).	GS–631	GS–6/12		Sep 62 (TS 29)		X
Occupational Therapist (Clinical Training supervisor) (Veterans Administration).	GS–631	GS–6/12		Sep 62 (TS 29)		X
Occupational Therapy Assistant	GS–636	GS–4/6	Aug 69 (TS 127)		May 72 (TS 107)	
Oceanographer	GS–1360	GS–5/15	Dec 68 (TS 121)		Sep 64 (TS 51)	
02Office Draftsman	GS–1021	GS–2/7	May 64 (TS 82) Mar 68 (TS 112)		Jun 66 (TS 67)	
Office Machine Operator (various positions).	GS–300 (GS–350).	GS–1/3	Sep 79 (TS 171)		Sep 63 (TS 41) Mar 66 (TS 65)	
Open Mess Manager (Interim) (Air Force).	GS–1101	GS–7/13		Apr 78		
Operating Room Nurse	GS–610	GS–4, 5/15	Mar 80 (TS 175)			

Operating Room Nurse Assistant	GS–621	GS–1/8	Oct 70 (TS 135)		Oct 70 (TS 102) May 77	
Operating Room Nurse Assistant (Veterans Administration).	GS–621	GS–1/8		Oct 70 (TS 102)		
Operations Research Analyst	GS–1515	GS–5/15	Dec 68 (TS 121)			
Optometrist	GS–662	GS–9 and above.	Apr 76 (TS 159)		Jul 67 (TS 76)	
Optometrist (Clinical) (Veterans Administration).	GS–662	GS–7/13		Dec 67 (TS 79)		
Orthotic-Prosthetic Aid	GS–667	GS–5/15	Jun 72 (TS 143)		Jun 72 (TS 108)	
Orthotist	GS–667	GS–5/15	Jun 72 (TS 143)		Jun 72 (TS 108)	
Orthotist-Prosthetist	GS–667	GS–5/15	Jun 72 (TS 143)		Jun 72 (TS 108)	
Outdoor Recreation Planner	GS–023	GS–5/15	Jun 70 (TS 134) Dec 75 (TS 156)		Jun 70 (TS 101)	
Packaging Specialist	GS–2032	GS–5/15	May 71 (TS 138)		May 71 (TS 104)	
Paralegal Specialist	GS–950	GS–5 and above.	Aug 75 (TS 155)			
Park Aid	GS–026	GS–1/3	Aug 69 (TS 127)		Nov 69 (TS 96)	
Park Manager (Interior)	GS–025	GS–9/15		Aug 69 (TS 94)		
Park Ranger (Interior)	GS–025	GS–5/15		Aug 69 (TS 94)		
Park Technician	GS–026	GS–4/9	Aug 69 (TS 127)		Nov 69 (TS 96)	
Passenger Rate Assistant	GS–2133	GS–4/6	May 79 (TS 170)			
Passenger Rate Specialist	GS–2133	GS–7/13	May 79 (TS 170)			
Passport Examiner (State)	GS–967	GS–5/15		Jun 62 (TS 27)		X
Patent Adviser (All Specializations)	GS–1221	GS–5/15	Dec 68 (TS 121)		Mar 61 (TS 12)	
Patent Aid (Commerce)	GS–1202	GS–2/4		Jul 79 (TS 145)		X

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Patent Classifier (All Specializations) (Commerce).	GS–1223	GS–12/15		Jun 60 (TS 3)		
Patent Examiner (All Specializations) (Commerce).	GS–1224	GS–5/15		Dec 68 (TS 89)		
Pathology Aid	GS–646	GS–1/3	May 68 (TS 114) Dec 75 (TS 156)		May 68 (TS 83) May 77	
Pathology Technician	GS–646	GS–4/12	May 68 (TS 114) Dec 75 (TS 156)		May 68 (TS 83) May 77	
Payroll Clerk	GS–300 (GS–544).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Payroll Clerk	GS–544	GS–4/5	Jun 71 (TS 139)		Jun 71 (TS 105) May 71	
Payroll Clerk	GS–500 (GS–544).	GS–4/6	Dec 80 (TS 184)		Mar 68 (TS 81) May 77	
Payroll Technician	GS–544	GS–6	Jun 71 (TS 139)		Jun 71 (TS 105) May 77	
Pension Benefits Examiner (Pension Benefits Guaranty Corporation).	GS–990	GS–5/15		Oct 80 (TS 178)		
Peripheral Equipment Operator	GS–350	GS–1/4	Nov 78 (TS 168)		Dec 60 (TS 9) May 77	
Personnel Assistant	GS–203	GS–6/10	Jul 66 (TS 100) Apr 73 (TS 145) Dec 75 (TS 156) Jan 78 (TS 164)		Jan 78 (TS 128)	

Personnel Clerk	GS–300 (GS–203).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Personnel Clerk	GS–203	GS–4/6	Jul 66 (TS 100) Apr 73 (TS 145) Dec 75 (TS 156) Jan 78 (TS 164)		Jan 78 (TS 128)	
Personnel Management Specialist	GS–200 (GS–201).	GS–5/15	Aug 78 (TS 167) Jun 80 (TS 178)		Jun 78 (TS 134)	
Personnel Officer	GS–200 (GS–201).	GS–11/15	Aug 78 (TS 167) Jun 80 (TS 78)		Jun 78 (TS 134)	
Personnel Psychologist	GS–180	GS–5/15	Jan 69 (TS 122) Apr (TS 165)		Jul 68 (TS 85)	
Personnel Security Specialist or Officer.	GS–080	GS–5/15	Dec 68 (TS 121)		Jul 60 (TS 4)	
Personnel Staffing Specialist	GS–200 (GS–212).	GS–5/15	Aug 78 (TS 167) Jun 80 (TS 178)		Jun 78 (TS 134)	
Pharmacist	GS–660	GS–7 and above.	Mar 68 (TS 112) Dec 75 (TS 156)		Mar 68 (TS 81)	
Pharmacologist	GS–405	GS–7/15	Dec 68 (TS 121)		Dec 65 (TS 63)	
Pharmacy Aid	GS–661	GS–1/3	Jun 72 (TS 143)		Jun 72 (TS 108)	
Pharmacy Technician	GS–661	GS–4/7	Jun 72 (TS 143)		Jun 72 (TS 108)	
Photographer	GS–1060	GS–4/12	Jan 64 (TS 79)		Jan 64 (TS 45)	
Photographer (Aerial)	GS–1060	GS–7/12	Jan 64 (TS 79)		Jan 64 (TS 45)	
Photographer (Laboratory)	GS–1060	GS–4/12	Jan 64 (TS 79)		Jan 64 (TS 45)	
Photographer (Medical)	GS–1060	GS–7/12	Jan 64 (TS 79)		Jan 64 (TS 45)	
Photographer (Medical) (Veterans Administration).	GS–1060	GS–4/12		Feb 68 (TS 80)		

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Photographer (Motion Picture)	GS–1060	GS–7/12	Jan 64 (TS 79)		Jan 64 (TS 45)	
Photographer (Scientific and Technical).	GS–1060	GS–7/12	Jan 64 (TS 79)		Jan 64 (TS 45)	
Photographer (Still)	GS–1060	GS–4/12	Jan 64 (TS 79)		Jan 64 (TS 45)	
Photographer (Television)	GS–1060	GS–7/12	Jan 64 (TS 79)		Jan 64 (TS 45)	
Photographer (Underwater)	GS–1060	GS–7/12	Jan 64 (TS 79)		Jan 64 (TS 45)	
Photographic Technologist	GS–1386	GS–5/15	Dec 68 (TS 121)			
Physical Medicine and Rehabilitation Coordinator (Veterans Administration).	GS–301	GS–10/13		Feb 64 (TS 46)		X
Physical Science Aid	GS–1311	GS–1/4	May 67 (TS 107) Dec 75 (TS 156)		May 67 (TS 75) May 77	
Physical Science Technician	GS–1311	GS–5/12	May 67 (TS 107) Dec 75 (TS 156)		May 67 (TS 75) May 77	
Physical Scientist	GS–1301	GS–5/15	May 71 (TS 138)		May 71 (TS 104)	
Physical Security Specialist or Officer.	GS–080	GS–5/15	Dec 68 (TS 121)		Jul 60 (TS 4)	
Physical Therapist	GS–633	GS–5/12	Nov 69 (TS 129)		Nov 69 (TS 96)	
Physical Therapist (Veterans Administration).	GS–633	GS–6/12		Sep 62 (TS 29)		X
Physical Therapy Assistant	GS–636	GS–4/6	Aug 69 (TS 127)		May 72 (TS 107)	

Physical Therapist (Clinical Training Supervisor) (Veterans Administration).	GS–633	GS–6/12		Sep 62 (TS 29)		X
Physician's Assistant	GS–603	GS–7/11	Oct 70 (TS 135)			
Physicist	GS–1310	GS–5/15	Dec 68 (TS 121)			
Physicist (Veterans Administration)	GS–1310	GS–5/15		Nov 62 (TS 31)		
Physiologist	GS–413	GS–5/15	Dec 68 (TS 121)			
Physiologist (Veterans Administration).	GS–413	GS–7/15		Nov 62 (TS 31)		
Plant Pathologist	GS–434	GS–5/15	Dec 68 (TS 121)			
Plant Protection Aid (Agriculture)	GS–421	GS–4		Aug 61 (TS 17)		X
Plant Protection Technician (Agriculture).	GS–421	GS–5/9		Aug 61 (TS 17)		X
Plant Physiologist	GS–435	GS–5/15	Dec 68 (TS 121)			
Plant Protection and Quarantine Officer (Agriculture).	GS–436	GS–5/15		Jan 81 (TS 156)		
Podiatrist	GS–668	GS–11/15	Jul 84 (TS 209)			
Police Officer	GS–083	GS–2/5	Jun 74 (TS 151)		Jul 68 (TS 85)	
Police Officer (Physical Requirements for Air Force) (Air Force).	GS–083			Jun 62 (TS 27) Mar 74 (TS 112)		
Port Receptionist (Justice)	GS–301	GS–5		Jun 62 (TS 27)		
Position Classification Specialist	GS–200 (GS–221).	GS–5/15	Aug 78 (TS 167) Jun 80 (TS 178)		Jun 78 (TS 134)	
Poultry Scientist	GS–487	GS–5/15	Jan 83 (TS 203)			
Practical (Vocational) Nurse	GS–620	GS–3/6	Aug 81 (TS 191) Nov 81 (TS 196)			
Printing Assistant	GS–1654	GS–5/15	May 79 (TS 170)		May 79 (TS 141)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Printing Clerk	GS–351	GS–1/6	Aug 81 (TS 191)			
Printing Clerk	GS–300 (GS–351).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Printing Officer	GS–1654	GS–5/15	May 79 (TS 170)		May 79 (TS 141)	
Printing Specialist	GS–1654	GS–5/15	May 79 (TS 170)		May 79 (TS 141)	
Procurement Analyst	GS–1102	GS–5/15	Nov 83 (TS 205) Mar 84 (TS 207)			
Procurement Assistant	GS–1106	GS–3/11	Jun 72 (TS 143)		Jun 72 (TS 108)	
Procurement Clerk	GS–300 (GS–1106).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Procurement Clerk	GS–1106	GS–3/11	Jun 72 (TS 143)		Jun 72 (TS 108)	
Production Control Aid	GS–1152	GS–4	May 79 (TS 170)			
Production Controller	GS–1152	GS–5/15	May 79 (TS 170)			
Program Administration Assistant (Housing and Urban Development).	GS–301	GS–9/14		Dec 68 (TS 89)		X
Program Administration Officer (Housing and Urban Development).	GS–301	GS–13/15		Dec 68 (TS 89)		X
Program Analysis Officer	GS–345	GS–11/15	Nov 65 (TS 94) May 77 (TS 162)			
Program Analyst	GS–345	GS–9/13	Nov 65 (TS 94) May 77 (TS 162)			

Program Management Series (Small Business Administration).	GS–340	GS–13/15		Mar 82 (TS 167)		
Program Manager (Treasury)	GS–340	GS–11/15		Oct 64 (TS 52)		
Program Operations Officer (Housing and Urban Development).	GS–301	GS–13/15		Dec 68 (TS 89)		X
Program Operations Officer (Housing and Urban Development).	GS–301	GS–9/15		Dec 68 (TS 89)		X
Program, Management, and Administrative Positions, Various.	GS–301	GS–5/15	Apr 80 (TS 176)			
Property Disposal Clerk	GS–300 (GS–1107).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Property Disposal Clerk and Technician (fly sheet).	GS–1107	GS–4 and above.	Jun 70 (TS 134)			
Property Disposal Specialist	GS–1104	GS–5/15	Jun 70 (TS 134)		Jun 70 (TS 101)	
Property Marketing Specialist	GS–1104	GS–5/15	Jun 70 (TS 134)		Jun 70 (TS 101)	
Property Utilization Specialist	GS–1104	GS–5/15	Jun 70 (TS 134)		Jun 70 (TS 101)	
Prosthetic Representative (Veterans Administration).	GS–672	GS 5/15		Sep 65 (TS 61)		X
Psychiatric Nurse	GS–610	GS–4, 5/15	Mar 80 (TS 175)			
Psychologist	GS–180	GS–5/15	Jan 69 (TS 122) Apr 78 (TS 165)		Jul 68 (TS 85)	
Psychology Aid	GS–181	GS–4	Feb 62 (TS 60)		Feb 62 (TS 23)	
Psychology Technician	GS–181	GS–5/9	Feb 62 (TS 60)		Feb 62 (TS 23)	
Public Affairs Series	GS–1035	GS–5/15	Jun 81 (TS 189)			
Public Health Educator (Health and Human Services).	GS–1725	GS–9/15		Jan 69 (TS 90)		X
Public Health Nutritionist	GS–630	GS–5/15	Dec 80 (TS 183)			

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Public Health Program Specialist (Interim) (Health and Human Services).	GS–685	GS–5/15		Jan 82		
Public Utilities Assistant	GS–1130	GS–5/7	Dec 68 (TS 121)		Jul 63 (TS 39)	
Public Utilities Specialist	GS–1130	GS–9/15	Dec 68 (TS 121)		Jul 63 (TS 39)	
Pulmonary Function Technician	GS–649	GS–4/9	Sep 68 (TS 118) Apr 73 (TS 145)		Sep 68 (TS 87) May 77	
Purchasing Agent	GS–1105	GS–4/12	Sep 69 (TS 128) Apr 73 (TS 145) Jun 74 (TS 151)		Sep 69 (TS 95)	
Quality Assurance Specialist	GS–1910	GS–5/15	Jan 83 (TS 203)			
Quarantine Inspector (Health and Human Services).	GS–1864	GS–7/9		Jul 65 (TS 59)		X
Radio Astronomer	GS–1330	GS–5/15	Jun 70 (TS 134)		Jun 70 (TS 101)	
Radio Operator	GS–300 (GS–389).	GS–3 and above.	Apr 73 (TS 145)		Aug 69 (TS 94)	
Radio Production Specialist	GS–1071	GS–5/14	Dec 68 (TS 121) Apr 75 (TS 153)		Nov 62 (TS 31)	
Railroad Accident Investigator	GS–2121	GS–5/15		Dec 79 (TS 148)		
Railroad Retirement Claims Examiner (Retirement) (Disability) (Railroad Retirement Board, SSA).	GS–993	GS–5/15		Jul 63 (TS 39)		X

Railroad Retirement Claims Specialist (Retirement) (Disability) (Railroad Retirement Board, SSA).	GS–993	GS–5/15		Jul 63 (TS 39)		X
Railroad Safety Inspector	GS–2121	GS–5/15		Dec 79 (TS 148)		
Railroad Safety Specialist	GS–2121	GS–5/15		Dec 75 (TS 148)		
Range Aid	GS–455	GS–1/3	May 73 (TS 146)		Mar 73(TS 109)	
Range Conservationist	GS–454	GS–5/15	Jul 80 (TS 179)			
Range Scientist	GS–454	GS–5/15	Jul 80 (TS 179)			
Range Technician	GS–455	GS–4/11	May 73 (TS 146)		Mar 73 (TS 109)	
Rating Specialist (Occupational) (Veterans Administration).	GS–101	GS–12		Jun 60 (TS 3)		X
Realty Officer	GS–1170	GS–5/15	Jun 71 (TS 139)		Jun 71 (TS 105)	
Realty Specialist	GS–1170	GS–5/15	Jun 71 (TS 139)		Jun 71 (TS 105)	
Recreation Aid	GS–189	GS–1/3	Sep 79 (TS 171) Apr 80 (TS 177)			
Recreation Assistant	GS–189	GS–4/6	Sep 79 (TS 171) Apr 80 (TS 177)			
Recreation/Creative Arts Therapist (all specializations).	GS–638	GS–5/15	Sep 79 (TS 171)			
Recreation Specialist (all specializations).	GS–188	GS–5/15	Sep 79 (TS 171)			
Reemployment Rights Compliance Officer and Assistant (Labor).	GS–301	GS–9/12		Jan 69 (TS 90)		
Refuge Manager (Interior)	GS–485	GS–5/15		Dec 68 (TS 89)		
Regional Economist	GS–110	GS–9/15	Dec 68 (TS 121)		May 63 (TS 37)	
Rehabilitation Loan Officer (Housing and Urban Development).	GS–1101	GS–9/14		Dec 68 (TS 89)		X

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Rehabilitation Specialist (Physical Medicine) (Veterans Administration).	GS–301	GS–12/14		Feb 64 (TS 46)		X
Rent Supplement Assistant/Specialist (Federal Housing Administration).	GS–301	GS–5/12		Jan 69 (TS 90) Oct 70 (TS 102)		X
Reporting Stenographer	GS–312	GS–5/6	Sep 79 (TS 171)		Jul 79 (TS 144) Mar 81 (TS 157)	
Research Agronomist	GS–471	GS–9/15	Dec 68 (TS 121)		Apr 61 (TS 13)	
Research Chemist	GS–1320	GS–11/15	Dec 68 (TS 121) Mar 70 (TS 132)		Jul 64 (TS 50)	
Research Entomologist	GS–414	GS–11/15	Dec 68 (TS 121)		Sep 64 (TS 51)	
Research Nurse	GS–610	GS–9/15	Mar 80 (TS 175)			
Resident in Hospital Administration (Veterans Administration).	GS–670			Dec 65 (TS 3)		
Restoration Technician	GS–664	GS–5/11	Dec 75 (TS 156)		Nov 63 (TS 43)	
Resource Development Officer/Assistant (Interior) (Interim).	GS–1101	GS–5/14		Dec 68		
Revenue Officer (Treasury)	GS–1169	GS–5/15		Jan 71 (TS 103)		
Safety and Occupational Health Specialist.	GS–018	GS–5/12	Aug 81 (TS 191)			
Safety and Occupational Health Manager.	GS–018	GS–11/15	Aug 81 (TS 191)			

Safety Technician	GS–019	GS–4/11	Jun 71 (TS 139) Apr 75 (TS 153)		Jun 71 (TS 105)	
Salary and Wage Administration Specialist	GS–200 (GS–223).	GS–5/15	Aug 78 (TS 167) June 80 (TS 178)		Jun 78 (TS 134)	
Sales Store Checker	GS–2091	GS–2/3	Apr 78 (TS 165)		Mar 78 (TS 130) May 77	
Sales Store Clerk	GS–2091	GS–2/3	Apr 78 (TS 165)		Mar 78 (TS 130) May 77	
Sanitarian	GS–688	GS–5/15	Nov 69 (TS 129)		Nov 69 (TS 96)	
Savings and Loan Examiner	GS–570	GS–5/15	Apr 69 (TS 124)		Apr 69 (TS 92)	
Savings and Loan Examining Officer	GS–570	GS–12/15	Apr 69 (TS 124)		Apr 69 (TS 92)	
School Administrator	GS–1722	GS–11/15	Oct 82 (TS 202)			
Scientific Illustrator	GS–1020	GS–7/12	Sep 79 (TS 171)		Jun 79 (TS 143)	
Secretary	GS–318	All Grades	Jan 80 (TS 173) Nov 81 (TS 195)			
Secondary Teacher	GS–1726	GS–5/11	Oct 82 (TS 202)			
Secondary Teaching Specialist	GS–1726	GS–5/11	Oct 82 (TS 202)			
Secretary (Stenography)	GS–318	All Grades	Jan 80 (TS 173) Nov 81 (TS 195)			
Service Office Supervisor (Housing and Urban Development).	GS–340	GS–15		Oct 80 (TS 154)	Oct 80 (TS 154)	
Secretary (Typing)	GS–318	All Grades	Jan 80 (TS 173)			
Security Administration Specialist or Officer.	GS–080	GS–5/15	Dec 68 (TS 121)		Jul 60 (TS 4)	
Security Classification Specialist or Officer.	GS–080	GS–5/15	Dec 68 (TS 121)		Jul 60 (TS 4)	
Security Specialist or Officer (General).	GS–080	GS–5/15	Dec 68 (TS 121)		Jul 60 (TS 4)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Securities Compliance Examiner (Securities and Exchange Commission).	GS–1831	GS–5/15		Aug 76 (TS 118)	Aug 76 (TS 118)	
Shipment Assistant	GS–2134	GS–6/8 and above.	Aug 82 (TS 201)			
Shipment Clerk	GS–2134	GS–4/5	Aug 82 (TS 201)			
Shipment Clerk	GS–300 (GS–2134).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Shorthand Reporter	GS–312	GS–6/9	Sep 79 (TS 171)		Jul 79 (TS 144) Mar 81 (TS 151)	
Social Insurance Administrator (Health and Human Services).	GS–105	GS–11/15		Jul 63 (TS 39)		X
Social Insurance Claims Examiner (Retirement) (Disability) (Railroad Retirement Board, SSA).	GS–993	GS–5/15		Jul 63 (TS 39)		X
Social Insurance Claims Specialist (Retirement) (Disability) (Railroad Retirement Board, SSA).	GS–993	GS–5/15		Jul 63 (TS 39)		X
Social Insurance Representative (Health and Human Services).	GS–105	GS–5/10		Jul 63 (TS 39)		
Social Science Analyst	GS–101	GS–5/15	Dec 68 (TS 121)		Dec 67 (TS 79)	
Social Science Program Specialist	GS–101	GS–9/15	Dec 68 (TS 121)		Dec 67 (TS 79)	
Social Service Representative	GS–187	GS–5/15	Apr 65 (TS 88)		Sep 64 (TS 51)	
Social Services Aid	GS–186	GS–1/4	Oct 82 (TS 202)			

Social Services Assistant	GS–186	GS–5 and above.	Oct 82 (TS 292)			
Social Work Associate	GS–187	GS–5/15	Apr 65 (TS 88)		Sep 64 (TS 51)	
Social Work Associate (Veterans Administration).	GS–187	GS–5/8		Sep 69 (TS 95)		X
Social Work Program Specialist	GS–185	GS–9/15	Dec 68 (TS 121) Apr 78 (TS 165)		Sep 64 (TS 51)	
Social Work	GS–185	GS–7/15	Dec 68 (TS 121) Apr 78 (TS 165)		Sep 64 (TS 51)	
Social Work (Veterans Administration).	GS–185	GS–9/15		Jan 71 (TS 103)		X
Sociologist	GS–184	GS–5/15	Dec 68 (TS 121)		Jul 65 (TS 59)	
Soil Conservation Aid	GS–458	GS–1/3	Jun 70 (TS 134)		Jun 70 (TS 101)	
Soil Conservation Technician	GS–458	GS–4/9	Jun 70 (TS 134)		Jun 70 (TS 101)	
Soil Conservationist	GS–457	GS–5/15	Mar 70 (TS 132)			
Soil Scientist	GS–470	GS–5/15	Jun 70 (TS 134)			
Space Scientist	GS–1330	GS–5/15	Jun 70 (TS 134)		Jun 70 (TS 101)	
Special Agent (Fisheries) (Interim) (Commerce).	GS–1812	GS–5/14		May 76		X
Special Agent (Wildlife) (Interim) (Interior).	GS–1812	GS–5/15		Mar 75		
Special Education Specialist	GS–1728	GS–5/11	Oct 82 (TS 202)			
Special Education Teacher	GS–1728	GS–5/11	Oct 82 (TS 202)			
Speech Pathologist	GS–665	GS–9/15	Feb 70 (TS 131)		Feb 70 (TS 98)	
Speech Pathologist (Veterans Administration).	GS–665	GS–9/15		Jan 69 (TS 90)		X
Speech Pathologist and Audiologist	GS–665	GS–9/15	Feb 70 (TS 131)		Feb 70 (TS 98)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Speech Pathologist and Audiologist (Veterans Administration).	GS–665	GS–9/15		Jan 6 (TS 90)		X
Sports Specialist	GS–030	GS–5/15	Apr 70 (TS 133)		Apr 70 (TS 100)	
Staff Curator (Appropriate Functional Area).	GS–1015	GS–5/15	Dec 68 (TS 121)		Apr 62 (TS 25)	
Staffing Assistant	GS–203	GS–6/10	Jul 66 (TS 100) Apr 73 (TS 145) Dec 75 (TS 156) Jan 78 (TS 164)		Jan 78 (TS 128)	
Staffing Clerk	GS–300 (GS–203).	GS–1/3	Dec 80 (TS 184)		Jan 78 (TS 128)	
Staffing Clerk	GS–203	GS–4/6	Jul 66 (TS 100) Apr 73 (TS 145) Dec 75 (TS 156) Jan 78 (TS 164)		Jan 78 (TS 128)	
State Veterans Employment Representative (Labor).	GS–301	GS–11/13		May 62 (TS 26) Jun 74 Mar 77 (TS 125)		X
Statistical Assistant	GS–1531	GS–5/13	Dec 75 (TS 156) Jan 78 (TS 164)		Jan 78 (TS 128)	
Statistical Clerk	GS–300 (GS–1531).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Statistical Clerk	GS–1531	GS–4	Dec 75 (TS 156) Jan 78 (TS 164)		Jan 78 (TS 128)	
Statistician	GS–1530	GS–5	Dec 68 (TS 121)		Jul 61 (TS 16)	

Statistician (alternate standard)	GS–1530	GS–5	May 62 (TS 63) Dec 75 (TS 156)		May 62 (TS 26)	
Statistician (appropriate subject-matter specialization) (alternate standard).	GS–1530	GS–7/9	May 62 (TS 63) Dec 75 (TS 156)		May 62 (TS 26)	
Statistician (appropriate subject-matter specialization).	GS–1530	GS–7/15	Dec 68 (TS 121)		Jul 61 (TS 16)	
Steward	GS–1667	GS–3/8	Dec 75 (TS 156)			
Student Trainee (Accounting) (fly-sheet).	GS–599	GS–2/5	Dec 71 (TS 140)		Nov 61 (TS 20)	
Student Trainee (Appropriate Specialty).	GS–099	GS–2/5	May 79 (TS 170)			
Student Trainee (Appropriate Specialty).	GS–199	GS–2/5	Nov 61 (TS 57)		Nov 61 (TS 20)	
Student Trainee (Appropriate Specialty).	GS–499	GS–2/5	Nov 61 (TS 57)		Nov 61 (TS 20)	
Student Trainee (Appropriate Specialty).	GS–899	GS–2/5	Nov 61 (TS 57)		Nov 61 (TS 20)	
Student Trainee (Appropriate Specialty) (Schedule B Positions).	GS–899	GS–2/5	Dec 68 (TS 121)		Nov 61 (TS 20)	
Student Trainee (Appropriate Specialty) (Schedule B Positions).	GS–1399	GS–2/5	Dec 68 (TS 121)		Nov 61 (TS 20)	
Student Trainee (Appropriate Specialty) (Schedule B Positions).	GS–1599	GS–2/5	Dec 68 (TS 121)		Nov 61 (TS 20)	
Student Trainee (Veterinarian) (Agriculture).	GS–799	GS–5/7	Dec 61 (TS 21)		Dec 61 (TS 21)	
Supervisory Accounting Clerk	GS–500	GS–4/6	Dec 80 (TS 184)		Mar 68 (TS 81) May 77	
Supervisory Airport Police Officer (Federal Aviation Administration).	GS–083	GS–6/11		May 74 (TS 113)	May 74 (TS 113)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Supervisory Apprenticeship and Training Representative (Labor).	GS–243	GS–9/15		Jan 75 (TS 114)		X
Supervisory Archeologist	GS–193	GS–5/15	Aug 83 (TS 204)			
Supervisory Archives Technician	GS–1421	GS–5/11	Jul 68 (TS 116)		Jul 68 (TS 85)	
Supervisory Border Patrol Agent (Justice).	GS–1896	GS–5/15		Jan 77 (TS 123)	Jan 77 (TS 123)	
Supervisory Cargo Scheduler	GS–2144	GS–9/12	Dec 75 (TS 156)		Jan 63 (TS 33)	
Supervisory Cash Clerk (Veterans Administration).	GS–530 (GS–593).	GS–5/14		Jul 64 (TS 50)		X
Supervisory Civil Rights Analyst	GS–160	GS–11/15	Nov 80 (TS 182)			
Supervisory Coding Clerk	GS–357	GS–5/9	Aug 81 (TS 191)			
Supervisory Communications Management Specialist.	GS–391	GS–11/15	Dec 69 (TS 130)		Dec 69 (TS 97)	
Supervisory Communications Technician (General Services Administration).	GS–392	GS–11		Aug 65 (TS 60)		X
Supervisory Contract Specialist (all positions).	GS–1102	GS–9/15	Nov 83 (TS 205) Mar 84 (TS 207)			
Supervisory Contractor Industrial Relations Specialist.	GS–246	GS–9/15	Dec 68 (TS 121)		Sep 64 (TS 51)	
Supervisory Correspondence Clerk (Veterans Administration).	GS–309	GS–5/11		May 62 (TS 26)		X

Supervisor Counselor (Employment) (Labor).	GS–101	GS–5/15		Dec 68 (TS 89)		X
Supervisory Criminal Investigator	GS–1810/ GS–1811.	GS–5/15	Dec 68 (TS 121)		Jul 64 (TS 50)	
Supervisory Criminal Investigator (Defense Investigative Service).	GS–1811	GS–5/15		May 74 (TS 113)		
Supervisory Criminal Investigator (Treasury).	GS–1811	GS–5/15		Apr 78 (TS 131)	Mar 78 (TS 130)	
Supervisory Customs Inspector (Treasury).	GS–1890	GS–5 and above.		Feb 77 (TS 124)	Feb 77 (TS 124)	
Supervisory Customs Patrol Officer (Treasury)	GS–1884	GS–5/15		Oct 80 (TS 155)	Oct 80 (TS 155)	
Supervisory Customs Security Officer (Treasury)	GS–1899	GS–11/12		Feb 71		
Supervisory Cytology Technician	GS–646	GS–4/12	May 68 (TS 114) Dec 75 (TS 156)		May 68 (TS 83) May 77	
Supervisory Deputy U.S. Marshal (Justice)	GS–082	GS–5/13		Jun 73 (TS 111)		X
Supervisory Detective	GS–083	GS–7/8	Jun 74 (TS 151)		Jul 68 (TS 85)	
Supervisory Editorial Assistant	GS–1087		Jun 74 (TS 151)		Jan 75 (TS 114)	
Supervisory Editorial Clerk	GS–1087		Jun 74 (TS 151)		Jan 75 (TS 114)	
Supervisory Education Aid	GS–1702	GS–5	Sep 68 (TS 118)		Sep 68 (TS 87)	
Supervisory Education Program Specialist.	GS–1720	GS–12/15		Oct 82 (TS 202)		
Supervisory Education Research Analyst.	GS–1730	GS–11/15		Oct 82 (TS 202)		
Supervisory Education Services Specialist.	GS–1740	GS–11/15	Oct 82 (TS 202)			

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Supervisory Elementary Teacher	GS–1724	GS–11 and above.	Oct 82 (TS 202)			
Supervisory Elementary Teaching Specialist	GS–1724	GS–11 and above.	Oct 82 (TS 202)			
Supervisory Equal Opportunity Assistant.	GS–361	GS–5 and above.	Nov 80 (TS 182)			
Supervisory Equal Employment Specialist.	GS–260	GS–11/15	Nov 80 (TS 182)			
Supervisory Equal Opportunity Specialist.	GS–360	GS–11/15	Nov 80 (TS 182)		May 72 (TS 107)	
Supervisory Financial Analyst	GS–1160	GS–11/15	Dec 68 (TS 121) Sep 73 (TS 148)		Jul 66 (TS 68)	
Supervisory Food Inspector (Agriculture).	GS–1863	GS–10/14		May 77 (TS 127)	May 77 (TS 127)	
Supervisory Food Inspector (Processed Products) (Agriculture).	GS–1863	GS–10/14		May 77 (TS 127)	May 77 (TS 127)	
Supervisory Guidance Counselor	GS–1740	GS–11/12	Oct 82 (TS 202)			
Supervisory Histopathology Technician.	GS–646	GS–4/12	May 68 (TS 114) Dec 75 (TS 156)		May 68 (TS 83) May 77	
Supervisory Immigration Examiner (Justice)	GS–1816	GS–4 and above.		Aug 69 (TS 94)		X
Supervisory Immigration Inspector (Justice).	GS–1816	GS–4 and above.		Aug 69 (TS 94)		X

Supervisory Import Specialist (Treasury).	GS–1889	GS–12/15		Apr 67 (TS 74)		
Supervisory Imported Animal By-Products Inspector (Agriculture)	GS–1860	GS–11		Jun 61 (TS 15)		
Supervisory Instructional Systems Specialist	GS–1750	GS–11/15	Oct 82 (TS 202)			
Supervisory Insurance Underwriter (Life and Medical) (VA)	GS–301	GS–8/12		Feb 65 (TS 55)		X
Supervisory Investigator	GS–1810/ GS–1811.	GS–5/15	Dec 68 (TS 121)		Jul 64 (TS 50)	
Supervisory Librarian	GS–1410	GS–7/15	Dec 68 (TS 121)		Mar 66 (TS 65)	
Supervisory Library Technician	GS–1411	GS–4/9	Apr 73 (TS 145) Dec 75 (TS 156) Jan 78 (TS 164)		Jan 78 (TS 128) May 77	
Supervisory Logistics Management Specialist.	GS–346	GS–5/15	Jun 72 (TS 143) May 73 (TS 146)			
Supervisory Management Analyst	GS–343	GS–5/15	Feb 72 (TS 141)		May 68 (TS 83)	
Supervisory Management Assistant	GS–344	GS–5/13	Apr 73 (TS 145)		Mar 68 (TS 81)	
Supervisory Management Clerk	GS–344	GS–3/7	Apr 73 (TS 145)		Mar 68 (TS 81)	
Supervisory Medical Technician	GS–645	GS–4/12	May 68 (TS 114) Jan 73 (TS 144) Dec 75 (TS 156)		Feb 70 (TS 98)	
Supervisory Medical Technologist	GS–644	GS–5 and above.	Jun 84 (TS 208)			
Supervisory Messenger	GS–302	GS–3/4	Apr 60 (TS 40)		Jan 62 (TS 22) May 77	
Supervisory Motor Carrier Safety Specialist (Transportation)	GS–2123	GS–11/15		Oct 80 (TS 154)		

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Supervisory Occupational Therapist (Veterans Administration)	GS–631	GS–6/12		Sep 62 (TS 29)		X
Supervisory Packaging Specialist	GS–2032	GS–5/15	May 71 (TS 138)		May 71 (TS 104)	
Supervisory Passenger Rate Specialist.	GS–2133	GS–7/13	May 79 (TS 170)			
Supervisory Pathology Technician	GS–646	GS–4/12	May 68 (TS 114) Dec 75 (TS 156)		May 68 (TS 83) May 77	
Supervisory Pharmacist	GS–660	GS–11 and above.	Mar 68 (TS 112) Dec 75 (TS 156)		Mar 68 (TS 81)	
Supervisory Physical Therapist (Veterans Administration).	GS–633	GS–6/12		Sep 62 (TS 29)		
Supervisory Police Officer	GS–083	GS–5/9	Jun 74 (TS 151)		Jul 68 (TS 85)	
Supervisory Port Receptionist (Justice).	GS–301	GS–7		Jun 62 (TS 27)		
Supervisory Positions in General Schedule Occupations.		GS–15 and below.	Nov 68 (TS 120) Apr 69 (TS 124)			
Supervisory Printing Clerk	GS–351	GS–5/9	Aug 81 (TS 191)			
Supervisory Printing Specialist	GS–1654	GS–5/15	May 79 (TS 170)		May 79 (TS 141)	
Supervisory Procurement Assistant	GS–1106	GS–3/11	Jun 62 (TS 143)		Jun 72 (TS 108)	
Supervisory Procurement Clerk	GS–1106	GS–3/11	Jun 62 (TS 143)		Jun 72 (TS 108)	

Supervisory Purchasing Agent	GS–1105	GS–4/12	Sep 69 (TS 128) Apr 73 (TS 145) Jun 74 (TS 151)		Sep 69 (TS 95)	
Supervisory Quarantine Inspector (Health and Human Services).	GS–1864	GS–11/13		Jul 65 (TS 59)		X
Supervisory Realty Officer	GS–1170	GS–5/15	Jun 71 (TS 139)		Jun 71 (TS 105)	
Supervisory Realty Specialist	GS–1170	GS–5/15	Jun 71 (TS 139)		Jun 71 (TS 105)	
Supervisory Sales Store Checker	GS–2091	GS–4	Apr 78 (TS 165)		Mar 78 (TS 130) May 77	
Supervisory Sales Store Clerk	GS–2091	GS–4	Apr 78 (TS 165)		Mar 78 (TS 130) May 77	
Supervisory Secondary Teacher	GS–1726	GS–11 and above.	Oct 82 (TS 202)			
Supervisory Secondary Teaching Specialist.	GS–1726	GS–11 and above.	Oct 82 (TS 202)			
Supervisory Social Services Aid	GS–186	GS–4/6	Oct 82 (TS 202)			
Supervisory Social Services Assistant	GS–186	GS–6 and above.	Oct 82 (TS 202)			
Supervisory Sociologist	GS–184	GS–5/15	Dec 68 (TS 121)		Jul 65 (TS 59)	
Supervisory Special Education Specialist.	GS–1728	GS–11 and above.	Oct 82 (TS 202)			
Supervisory Special Education Teacher.	GS–1728	GS–11 and above.	Oct 82 (TS 202)			
Supervisory Technical Information Specialist.	GS–1412	GS–5/15	Dec 68 (TS 121)		Mar 66 (TS 65)	
Supervisory Traffic Management Specialist.	GS–2130	GS–5/15	Dec 71 (TS 140) Jan 73 TS 144)		Dec 71 (TS 106)	
Supervisory Training Instructor	GS–1712	GS–9/11	Nov 63 (TS 78) Dec 75 (TS 156)			

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Supervisory Travel Assistant	GS–2132	GS–5/11	Jun 62 (TS 64) Dec 75 (TS 156)		Jul 61 (TS 16)	
Supervisory Unemployment Compensation Claims Examiner (D.C. Government).	GS–994	GS–5/14		Jul 63 (TS 39)		X
Supervisory Wage and Hour Compliance Specialist (Labor).	GS–249	GS–5/15		Mar 74 (TS 112)	Mar 74 (TS 112)	
Supply Clerk	GS–2005	GS–4/5	Jul 68 (TS 116) Dec 75 (TS 156)		Jul 68 (TS 85)	
Supply Clerk	GS–300 (GS–2005).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Supply Group—Technical Supply Positions.	GS–2001 GS–2003 GS–2010 GS–2030 GS–2050.	GS–5/15	Jun 72 (TS 143)		Feb 64 (TS 46)	
Supply Technician	GS–2005	GS–6/8	Jul 68 (TS 116) Dec 75 (TS 156)		Jul 68 (TS 85)	
Surface Mining Reclamation Specialist (Interior).	GS–1801	GS–5/12		Mar 81 (TS 158)	Mar 81 (TS 158)	
Survey Statistician	GS–1530	GS–7/15	Dec 68 (TS 121)		Jul 61 (TS 16)	
Surveying Aid	GS–817	GS–1/3	May 71 (TS 138)		June 71 (TS 105)	
Surveying Technician	GS–817	GS–4/12	May 71 (TS 138)		Jun 71 (TS 105)	
Support Services Specialist/Supervisor.	GS–342	GS–1/15	Jan 79 (TS 169)		Nov 78 (TS 137)	

Tax Examining Clerk (Treasury)	GS–592	GS–1/5			Jun 82 (TS 168)	
Tax Examining Assistant (Treasury)	GS–592	GS–6/13			Jun 82 (TS 168)	
Tax Law Specialist (Treasury)	PES No. 2132 GS–987.	GS–5/15		Jun 58		
Tax Technician (Treasury)	GS–526	GS–5/15		Apr 62 (TS 25)		
Tax Trainee (Treasury)	GS–500	GS–2/3		May 64 (TS 49)		X
Technical Equipment Illustrator	GS–1020	GS–7/12	Sep 79 (TS 171)		Jun 79 (TS 143)	
Technical Information Officer (appropriate specialization).	GS–1412	GS–5/15	Dec 68 (TS 121)		Mar 66 (TS 65)	
Technical Information Specialist	GS–1412	GS–5/15	Dec 68 (TS 121)		Mar 66 (TS 65)	
Technical Writer and Editor	GS–1083	GS–5/14	May 62 (TS 63) Dec 75 (TS 156)		Mar 62 (TS 24)	
Telephone Operator	GS–382	GS–1/7	Apr 69 (TS 124)		Apr 69 (TS 92) May 77 Jun 77	
Teletypist	GS–300 (GS–385).	GS–3 and above.	Apr 73 (TS 145)		Aug 69 (TS 94)	
Television Production Specialist	GS–1071	GS–5/14	Dec 68 (TS 121) Apr 75 (TS 153)		Nov 62 (TS 31)	
Textile Technologist	GS–1384	GS–5	Jul 66 (TS 100)			
Theater Specialist	GS–1054	GS–5/15	Apr 70 (TS 133) Feb 76 (TS 158)		Apr 70 (TS 100)	
Therapy Aid	GS–636	GS–1/3	Aug 69 (TS 127)		May 72 (TS 107)	
Therapeutic Radiologic Technician/ Technologist.	GS–648	GS–3 and above.	May 79 (TS 170)		Jun 78 (TS 133)	
Therapy Assistant	GS–636	GS–4/6	Aug 69 (TS 127)		May 72 (TS 107)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Time and Leave Clerk	GS–300 (GS–590).	GS–1/3	Apr 80 (TS 176)		Mar 80 (TS 151)	
Time and Leave Clerk	GS–500 (GS–590).	GS–4/6	Dec 80 (TS 184)		Mar 68 (TS 81) May 77	
Trade Assistant	GS–1140	GS–5/7	Dec 78 (TS 121)		Nov 63 (TS 43)	
Trade Specialist	GS–1140	GS–9/15	Dec 68 (TS 121)		Nov 63 (TS 43)	
Traffic Management Specialist	GS–2130	GS–5/15	Dec 71 (TS 140) Jan 73 (TS 144)		Dec 71 (TS 106)	
Traffic Manager	GS–2130	GS–5/15	Dec 71 (TS 140) Jan 73 (TS 144)		Dec 71 (TS 106)	
Training Administrator	GS–1712	GS–9/15	Feb 80 (TS 174)			
Training Instructor	GS–1712	GS–5/13	Feb 80 (TS 174)			
Training Specialist	GS–1712	GS–5/14	Feb 80 (TS 174)			
Training Technician	GS–1702	GS–4 and above.	Sep 68 (TS 118)		Sep 68 (TS 87)	
Transportation Assistant	GS–2102	GS–4 and above.	Apr 78 (TS 165)		Mar 78 (TS 130)	
Transportation Clerk	GS–300 (GS–2102).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Transportation Clerk	GS–2102	GS–4 and above.	Apr 78 (TS 165)		Mar 78 (TS 130)	
Transportation Industry Analysis Series.	GS–2110	GS–5/15	Dec 79 (TS 172)			

Travel Assistant	GS–2132	GS–7/11	Jun 62 (TS 64) Dec 75 (TS 156)		Jul 61 (TS 16)	
Travel Clerk	GS–300 (GS–2132).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Travel Clerk	GS–2132	GS–4/6	Jun 62 (TS 64) Dec 75 (TS 156)		Jul 61 (TS 16)	
Unemployment Compensation Claims Examiner (D.C. Govt).	GS–994	GS–5/14		Jul 63 (TS 39)		X
Unemployment Insurance Program Specialist (Labor).	GS–106	GS–5/15		Feb 69 (TS 89)		
Urban Renewal Assistant (Housing and Urban Development).	GS–301	GS–5/7		Jan 69 (TS 90)		X
Urban Renewal Representative	GS–301	GS–9/12		Jan 69 (TS 90)		X
Vessel Sanitation Inspector (Health and Human Services).	GS–1864	GS–7		Jul 65 (TS 59)		X
Veterans Claims Examiner (Veterans Administration).	GS–996	GS–5/15		Jan 69 (TS 90) Oct 70 (TS 102)		X
Veterans Employment Specialist (Labor).	GS–301	GS–11/15		May 62 (TS 26) Jun 74 Mar 77 (TS 125)		X
Veterinary Medical Science Series	GS–701	GS–5/15	Nov 81 (TS 196)			
Visa Examiner (State)	GS–967	GS–5/15		Jun 62 (TS 27)		X
Visit Control Security Specialist or Officer.	GS–080	GS–5/15	Dec 68 (TS 121)		Jul 60 (TS 4)	
Visual Information Officer	GS–1084	GS–9/13	May 62 (TS 63) Feb 74 (TS 149)		May 62 (TS 26) Mar 74 (TS 112)	
Visual Information Specialist	GS–1084	GS–5/13	May 62 (TS 63) Feb 74 (TS 149)		May 62 (TS 26) Mar 74 (TS 112)	

ALPHABETICAL INDEX TO PRINTED QUALIFICATION STANDARDS AND EXAMINING GUIDES—Continued

Title	Series	Grades	Government-wide qualification standards	Single agency qualification standards	Examining guides (OPM use only)	
			Date and TS number	Date and TS number	Date and TS number	Part 2 of SAQS
Visual Information Specialist (Exhibits).	GS–1084	GS–9/13	May 62 (TS 63) Feb 74 (TS 149)		May 62 (TS 26) Mar 74 (TS 112)	
Visual Information Specialist (Presentations).	GS–1084	GS–9/13	May 62 (TS 63) Feb 74 (TS 149)		May 62 (TS 26) Mar 74 (TS 112)	
Visual Information Specialist (Printed Material).	GS–1084	GS–9/13	May 62 (TS 63) Feb 74 (TS 149)		May 62 (TS 26) Mar 74 (TS 122)	
Vocational Development Specialist	GS–1715	GS–5/15	Mar 70 (TS 132)		Mar 70 (TS 99)	
Vocational Guidance Assistant (Interior).	GS–1702	GS–7/11		Feb 68 (TS 80)		X
Vocational Guidance Officer (Interior).	GS–1702	GS–7/11		Feb 68 (TS 80)		X
Vocational Rehabilitation Specialist	GS–1715	GS–5/15	Mar 70 (TS 132)		Mar 70 (TS 99)	
Voucher Examining Clerk	GS–300 (GS–540).	GS–1/3	Apr 80 (TS 176) Dec 80 (TS 184)		Mar 80 (TS 151)	
Voucher Examining Clerk	GS–500 (GS–540).	GS–4/6	Dec 80 (TS 184)		Mar 68 (TS 81) May 77	
Wage and Hour Compliance Specialist (Labor).	GS–249	GS–5/15		Mar 74 (TS 112)	Mar 74 (TS 112)	
Warehouse Examiner (Agriculture)	GS–1850	GS–5/11		Jul 79 (TS 144)		X
Warehouse Examiner (Grain) (Agriculture).	GS–1850	GS–9		Aug 62 (TS 28)		X
Wildlife Biologist (General)	GS–486	GS–5/15	Dec 68 (TS 121)		Apr 62 (TS 25)	
Wildlife Biologist (Management)	GS–486	GS–9/15	Dec 68 (TS 121)		Apr 62 (TS 25)	

Wildlife Biologist (Research)	GS–486	GS–9/15	Dec 68 (TS 121)		Apr 62 (TS 25)	
Wildlife Inspector (Interim) (Interior)	GS–1899	GS–4/7		Jan 77		
Workers' Compensation Claims Examiner (Labor).	GS–991	GS–5/15		Oct 76 (TS 120)		X
Work Unit Supervisor	GS–313	GS–5/11	Oct 80 (TS 181)			
Young Adult Conservation Corps Program Manager.	GS–340	GS–9/12		May 78 (TS 132)	May 78 (TS 132)	
Zoologist	GS–410	GS–5/15	Dec 68 (TS 121)			
Zoologist (Veterans Administration)	GS–410	GS–5/15		Aug 68 (TS 86)		

☆ U. S. GOVERNMENT PRINTING OFFICE: 1986 O - 153-489

June 1984
63
(TS 200)

JAN 23 '86

COMPLETED 27

PM1.8/3:X-118/trans.210

IE's 270

ORIGINAL

UNITED STATES

OFFICE OF PERSONNEL MANAGEMENT

Handbook X–118

Qualification Standards for Positions Under the General Schedule

TRANSMITTAL SHEET NO. 210

October 1985

This transmits new pages for a number of standards to bring those standards into conformance with the Common Pattern of Grade Eligibility Based on Graduate Education as included in Part II, Instructions to Users. The standards which have been revised are:

GS–193, Archeology Series.
GS–487, Animal Science Series.
GS–644, Medical Technologist Series.
GS–1102, Contracting Series.
GS–1728, Special Education Series.
GS–1740, Education Services Series.
GS–1750, Instructional Systems Series.
GS–1910, Quality Assurance Series.

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402

BEST COPY AVAILABLE

TABLE OF CHANGES

Remove	Issue date	Insert
GS–193, Archeology Series, pages 3–4.	Aug. 1983 (TS–204)	GS–193, Archeology Series, pages 3–4, Oct. 1985 (TS–210)
GS–487, Animal Science Series, pages 3–4.	Jan. 1983 (TS–203)	GS–487, Animal Science Series, pages 3–4, 4.01, Oct. 1985 (TS–210)
GS–644, Medical Technologist Series, pages 3–4.	June 1984 (TS–208)	GS–644, Medical Technologist Series, pages 3–4, 4.01, Oct. 1985 (TS–210)
GS–1102, Contracting Series, pages 3–4, 5–6.	Nov. 1983 (TS–205) Mar. 1984 (TS–207)	GS–1102, Contracting Series, pages 3–4, 5–6, Oct. 1985 (TS–210)
GS–1728, Special Education Series, pages 1–2.	Oct. 1982 (TS–202)	GS–1728, Special Education Series, pages 1–2, Oct. 1985 (TS–210)
GS–1740, Education Services Series, pages 1–2, 3–4.	Oct. 1982 (TS–202)	GS–1740, Education Services Series, pages 1–2, 3–4, Oct. 1985 (TS–210)
GS–1750, Instructional Systems Series, pages 3–4.	Oct. 1982 (TS–202)	GS–1750, Instructional Systems Series, pages 3–4, Oct. 1985 (TS–210)
GS–1910, Quality Assurance Series, pages 3–4, 5–6.	Jan. 1983 (TS–203)	GS–1910, Quality Assurance Series, pages 3–4, 5–6, 6.01, Oct. 1985 (TS–210)

BEST COPY AVAILABLE

have been at the level of difficulty comparable to the next lower grade, or one year comparable to the second lower grade in the Federal service. For grades GS-12 and above, at least one year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education* [1]

In addition to the basic or alternate requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade	*Minimum amount of graduate education in appropriate subject matter fields*
GS-7	One year of full-time graduate education.
GS-9	Completion of all requirements for a master's or equivalent degree.
	OR
	Two years of full-time graduate education.
GS-11	Completion of all requirements for a doctoral degree (Ph.D or equivalent).
	OR
	Three years of full-time graduate education.

3. *Combination of professional experience and graduate education*

Equivalent combinations of professional archeological experience and graduate education of the type described above are acceptable at each grade.

PROFESSIONAL EXPERIENCE REQUIREMENTS

Experience may have been gained in the performance of professional archeological survey, excavation, laboratory analysis, and report preparation to obtain demonstrated knowledge of the appropriate fundamental principles and theories and the skills and technical competence in the use of scientific methods and techniques of archeology.

[1] The superior academic achievement provision may not be used to fill positions in this series.

For GS-7—Candidates should demonstrate the knowledge and skills to be a crew chief, participate in the development and planning of a single archeological field project, and direct the implementation of such a project.

For GS-9—The work experience must have demonstrated a working knowledge of methods and techniques applicable to archeology. Archeological work required in educational courses such as archeological field schools and laboratories are not to be used in lieu of actual work experience. It must also have demonstrated skill in the investigation, treatment, and analysis of basic data in preparing interpretative and analytical reports. For example, candidates should demonstrate the knowledge and skills to participate with other more experienced archeologists in the development and planning of a single archeological field project and have directed the implementation of such a project, including preparation of technical reports.

For GS-11—The work experience must have demonstrated that the candidate possesses the ability to perform archeology work of some difficulty and responsibility. The experience must demonstrate the knowledge and skills to develop, plan, and supervise implementation of original, independent fieldwork at multiple archeological field projects or increasingly more complex single projects, including preparation or supervision of preparation of technical reports. The experience must also demonstrate a full understanding of budgeting, administering, and managing projects, and conferring with higher management on the implementation of projects.

For GS-12—The work experience must have demonstrated skill, knowledge, and technical competence in the use of (a) scientific and mathematical theories and principles applicable to archeology, (b) professional or scientific inquiry and analysis in the solution of difficult and complex problems, and (c) substantive topical and regional data, e.g., the knowledge and skills to develop and manage archeological programs, ranging from single geographic areas within regions

BEST COPY AVAILABLE

to major geographic areas encompassing a number of regions. Ability to prepare thorough and comprehensive reports relating to difficult problems must also be demonstrated.

For GS-13—The work experience must have demonstrated that the candidate possesses a thorough understanding of scientific principles and theories underlying archeology and a wide knowledge of concepts, factors, and conditions necessary to develop and implement archeological programs. The experience must have demonstrated the candidate's ability in the organization, direction, and coordination of complicated and important projects, programs, or studies, or marked technical competence and creativity in original scientific inquiry in developing new methods or new insight into relationships involved in complex archeological areas.

For GS-14 and GS-15—The work experience must (a) demonstrate a thorough knowledge and understanding of the scientific principles and theories applicable to archeology and (b) result in new information or advances concerning various alternative courses of action to resolve exceedingly complex archeological problems. Experience must demonstrate: (1) skill and facility in the organization, direction, and coordination of complex and difficult projects; (2) exceptional competence in creative activities of high calibre resulting in important contributions to the fundamental knowledge of archeology; and (3) ability to conduct high-level consultative and/or advisory work in formulating, presenting, and carrying out far-reaching changes in archeological programs, plans, and policies.

SELECTIVE FACTORS

Archeologists apply an understanding of the principles of archeology and related sciences and technologies. Some archeologist positions however require a particular knowledge or combination of knowledge and skills as essential requirements for satisfactory performance. For example, archeologists may work their way into a given culture or geographical area (e.g., North America, Latin America, the West Indies, Europe, or India) which remains a continuing interest even though they later pursue certain topical or theoretical interest over wide areas, or develop a second area for comparative purposes. This pattern provides regional specialists for programs or projects which require recruitment of archeologists based on specialized knowledge of the cultural history peculiar to a given area.

It may be appropriate to use these requirements as selective factors, i.e., only those candidates who have the appropriate knowledge and skills are referred for employment consideration. Where selective factors are used, they must be demonstrably related to the knowledge, skills, and other characteristics considered essential for satisfactory performance of the duties of the position.

The appropriateness of the selective factors (1) should be reflected in the duties and responsibilities of the position as presented in the position description or in other official information provided by the agency and (2) must not establish an unreasonably high or overly restrictive requirement. Selective factors should not be used if it is evident that other eligibles could perform satisfactorily after a customary training period.

QUALITY RANKING FACTORS

Agencies may develop quality ranking factors to assist in determining which applicants are best qualified.

These do not affect the basic qualification requirement, but must be directly related to the duties and responsibilities of the position

BEST COPY AVAILABLE

stantially to animal, dairy, or poultry science research. This standard has been designed with this in mind, and should be interpreted accordingly.

Course work in such subjects as agronomy, animal, dairy, or poultry science, biology, botany, zoology, microbiology, physiology, genetics, and biochemistry may be used to meet the general 30 semester hour requirement in the basic biological and agricultural sciences.

Course work in such subjects as zoology, embryology, animal breeding or genetics, physiology, biochemistry, and any phase of animal, dairy, or poultry science may be used to meet the 20 semester hour requirement in animal science.

Course work in animal science includes those subjects dealing with the specific kinds and classes of livestock, e.g., cattle, swine, sheep, or fur bearers, their breeding and development, nutrition, management, and utilization, and the qualities and uses of their products, e.g., meat, wool, or leather.

Course work in dairy science includes those subjects dealing with the specific kinds and classes of dairy animals; their nutrition and management; the utilization of their products; and courses dealing with the establishment of lineages, various phases of a dairy operation, milk quality, etc.

Course work in poultry science includes those subjects dealing with the kinds and classes of poultry; their breeding and development; the establishment of specific strains; their nutrition and management; the utilization of their products; and courses dealing with specific areas peculiar to poultry science, such as genetic or environmental factors, or rearrangement of cycles.

GS-5—The basic requirements that apply to all grades are fully qualifying for grade GS-5.

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Candidates for grades GS-7 and above must have had either professional experience or graduate education (or an equivalent combination of both) in addition to meeting the basic requirements. Such professional experience or graduate education must have been in, or directly related to, animal, dairy, or poultry science.

This experience or education must have equipped the candidate with the knowledge and ability to perform fully the work of the position for which he/she is being considered. For example, candidates for research positions must possess the aptitude or ability to perform professional research work at the appropriate grade level.

1. *Experience*

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	*Minimum amount of professional experience in appropriate subject-matter fields (years)*
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below at least 6 months of the required experience must have been at the level of difficulty comparable to that of the next lower grade, or 1 year comparable to the second lower grade, in the Federal service. For grades GS-12 and above, at least 1 year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service.

2. *Education*

In addition to the basic requirements, the following amounts and levels of education are qualifying for grades GS-7 and above, as shown:

Grade:	*Minimum amount or level of education in appropriate subject-matter fields*
GS-7	One year of full-time graduate education.

BEST COPY AVAILABLE

GS–9	Completion of all requirements for a master's or equivalent degree; *or* Two years of full-time graduate education.
GS–11	Completion of all requirements for a doctoral degree (Ph.D. or equivalent); *or* Three years of full-time graduate education.
GS–11 Research positions.	Completion of all requirements for a master's or an equivalent degree for which at least two full academic years of graduate study are required when: a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–11 level after a short orientation period.
GS–12 Research positions.	Completion of all requirements for a doctoral degree (Ph.D. or equivalent) for appointment to such positions as meet the following criteria: a. The position involves primarily *research* or very similar research-type exploratory development of a creative or advanced scientific nature. b. The knowledges required for the work are *typically and preferably* acquired through graduate study at the doctoral (Ph.D. or equivalent) level. c. The work is of such character that the academic preparation will equip the candidate to perform fully the professional work at the GS–12 level after a short orientation period.

3. *Combinations of professional experience and graduate education*

Equivalent combinations of professional experience and graduate education of the types described above are acceptable at each grade. (See the Part II, Section III, Introduction to Handbook X–118, for specific information on crediting "full time" and "part time" graduate study.)

4. *Alternate requirements*

Superior academic achievement at the baccalaureate level or 1 year of student trainee experience is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of appropriate professional experience is qualifying at grade GS–9. In each case, the pertinent criteria in Section III of Part II, Instructions to Users, of Handbook X–118 must be met.

QUALIFYING FIELDS OF GRADUATE STUDY

To be qualifying, this graduate study must have been in animal, dairy, or poultry science; or in a specialized subject-matter area of science directly related to these sciences, such as feeds and feeding or nutrition, breeding, and development, physiology, or genetics, where the curriculum or pattern of training placed major emphasis on one of the recognized specialized subject-matter areas of animal, dairy, or poultry science.

Graduate study in related disciplines or fields of science, such as agronomy, microbiology, biochemistry, biophysics, and dairy, food, or fiber technology (where it deals with pertinent products or their production) may also be qualifying, *provided* the graduate work placed a sufficient amount of emphasis on one of the recognized fields or subject-matter areas of animal, dairy, or poultry science.

BEST COPY AVAILABLE

CREATIVE OR OUTSTANDING RESEARCH

Candidates who furnish positive evidence that they have performed highly creative or outstanding research, that either has led or can lead to a major advance in a specific area of research, to a major advance in the discipline or field of science involved, or to major advances in science in general, may be rated on this basis for *highly demanding research positions* requiring similar abilities. Under these circumstances, candidates can be rated eligible for the next higher grade above that for which they would—*(Continued on pg. 5.)*

7 BEST COPY AVAILABLE

ADDITIONAL EXPERIENCE AND TRAINING REQUIREMENTS

Positions above GS-5 require either professional experience or graduate education, or an equivalent combination of both, in addition to completing the basic requirements. This professional experience or graduate education must have been in (1) the general field of medical technology, (2) one of the disciplines or specialized areas of medical technology, or (3) a field directly related and applicable to medical technology or to the position to be filled. This experience and/or education, with pertinent self-study, must give positive evidence of having equipped the candidate to perform all the duties of the position.

The professional experience required for positions above GS-5 is defined as analytical or evaluative work that required and was characterized by the application of knowledge of the concepts, theories, principles, and practices of medical technology and related disciplines and by the positive and continuing development of knowledge to keep abreast of the advances and changes in the field.

Experience

In addition to the basic requirements, the following amounts of professional experience are required for grades GS-7 and above:

Grade:	Years
GS-7	1
GS-9	2
GS-11 and above	3

For grades GS-11 and below, at least six months of the required experience must have been at a level of difficulty comparable to that of the next lower grade or one year comparable to the second lower grade in the Federal service. For grades GS-12 and above, at least one year of the required experience must have been at a level of difficulty comparable to that of the next lower grade in the Federal service. To determine the level of difficulty of the candidate's experience, refer to the position classification standard for the Medical Technologist Series, GS-644.

For any grade, the required amount of experience will not, in itself, be accepted as proof of qualification for a position. The quality of experience, rather than its length, will be given primary consideration.

Education

In addition to the basic requirements, the following amounts of graduate education (expressed in terms of years of full-time graduate study) are qualifying for grades GS-7 and above:

Grade:	Years
GS-7	1
GS-9	2
GS-11	3

or

Completion of all requirements for a master's or equivalent degree is qualifying for grade GS-9. Completion of all requirements for a doctoral (Ph.D. or equivalent) degree is qualifying for GS-11.

Combinations of Professional Experience and Graduate Education

Equivalent combinations of professional experience and graduate education of the type described above are acceptable at each grade.

Alternate Requirements

Superior academic achievement at the baccalaureate level is qualifying at grade GS-7. A combination of superior academic achievement at the baccalaureate level and one year of appropriate professional experience is qualifying at grade GS-9. In each case, the pertinent criteria in section III of part II (Instructions to Users) of this handbook must be met.

Student trainee experience gained as a student medical technologist in a CAHEA-accredited education program may be credited

BEST COPY AVAILABLE

on a month-for-month basis toward meeting the requirements for GS-7. (NOTE: A typical CAHEA-accredited program comprises twelve consecutive months of professional study, including didactic and practical instruction. Approximately six to seven months are devoted to lectures, laboratory study, demonstrations, and seminars covering theory and technique in clinical laboratory science. The other five to six months are devoted to clinical laboratory rotations. It is the latter, i.e., the period(s) of supervised work experience in a service laboratory—as distinguished from a student laboratory—which may be credited as student trainee experience.)

For positions at grade GS-7, medical technician experience equivalent to grade GS-5 or higher may be substituted on a month-for-month basis for the professional experience requirements described above, provided the candidate has met the basic requirements for all grades.

For positions above GS-7, *in in-service placement actions only,* medical technician experience may be accepted as equivalent to the professional experience required for the same grade when all of the conditions described under the heading "Evaluation of Technician Experience for Professional Positions" in section II of part II of this handbook are met.

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this handbook must be used in conjunction with this standard.

EMPLOYMENT INTERVIEW

Candidates who meet the education, experience, and other requirements may be requested to appear for an employment interview. The prospective employer interviews the candidate to observe and evaluate personal characteristics and qualifications which are essential to the successful performance of the duties of the position.

BASIS OF RATING

No written test is required. Candidates will be rated on the basis of the extent and quality of their experience and training. Ratings will be based on information furnished in application forms and any additional information that may be secured by qualifications inquiries made to supervisors, schools, and other references.

SELECTIVE FACTORS AND QUALITY RANKING FACTORS

For some specialized positions, only candidates who possess specific job-related knowledges, skills, abilities, or other worker characteristics may be qualified. For example, if a position requires an extensive knowledge of laboratory information management or highly developed skill in research techniques, that knowledge or skill may be used as a selective factor. A selective factor is a knowledge, skill, or ability that is essential for satisfactory performance on the job and represents an addition to the basic qualifications for a position. Justification for selective factors must show (a) how the selective factor is directly related to the duties and responsibilities of the position and (b) why possession of the knowledges, skills, or abilities identified as selective factors is necessary for successful performance in the position.

For some specialized positions, candidates who possess specific job-related knowledges, skills, abilities, or other worker characteristics may be better qualified candidates than those who are only basically qualified. Therefore, specific knowledges, skills, and abilities may be used as quality ranking factors. Justification for quality ranking factors must show (a) how the quality ranking factor is directly related to the duties and responsibilities of the position and (b) why possession of the desired knowledge, skill, or ability would predict superior performance.

Specializations, as indicated by clinical disciplines (hematology, chemistry, bacteriology, etc.) and/or functional division (administra-

BEST COPY AVAILABLE

tion, research, education) of work, while not recognized in the titling practices for this series or in this qualification standard, should be used for quality ranking or selective certification when the particular position to be filled clearly requires some specialized education and/or experience. For more information about selective and quality ranking factors, see chapter 332 of the Federal Personnel Manual.

BEST COPY AVAILABLE

—Knowledge of arithmetic practices used in business to compare prices, including discounts and warranties;
—Knowledge and skill to apply guideline material by reading and interpreting regulations and technical material, and translating the guidance into specific actions;
—Knowledge and skill to present technical information in written form;
—Skill in dealing with others in a work relationship to present information orally and accomplish a given purpose.

OR

B. Completion of a full four year course of study in an accredited college or university that meets all requirements for a bachelor's degree in any field.

OR

C. A time equivalent combination of experience and education as defined in A or B above. In combining education with experience, an academic year of study is equivalent to nine months experience.

The knowledge and skill required in A above may have been gained in a variety of administrative or technical support work. Experience of a routine nature (i.e., work which primarily involved typing, filing, or procedural clerical work) is not qualifying.

While not inclusive, the following types of work experience are illustrative of ways in which the basic skills and underlying knowledge may have been obtained:

—Purchasing, rental, or lease of supplies, services, and equipment through informal open-market methods, including imprest fund (cash) accounts, orders under blanket purchase agreements (charge accounts), orders under indefinite delivery contracts such as Federal Supply Schedules, or other simplified purchase procedures.
—Substantive technical support work for purchasing, procurement, contract negotiation, administration, or termination functions which included preparing, controlling, verifying or abstracting procurement documents, reports, or industry publications; assembling product and price data for procurement negotiations; reporting on performance of contractors in meeting terms of contracts; and similar work.

The following are examples of related types of work experience which in some cases may have provided the basic skills and knowledge required by the specific position.

—Work of an accounting nature requiring a basic understanding of existing accounting systems and procedures to examine, verify, and maintain accounts and accounting data, or to perform technical audit functions, develop or install revised accounting procedures, or similar work.
—Examining work including the review for accuracy and adequacy of documentation or citations, compliance with regulations, and justification of vouchers, invoices, claims, and other requests for payment for goods and services provided to or by the Government, or satisfaction of breach of contract or default in fulfilling contractual obligations, e.g., unauthorized substitution of materials specified in a contract or change from contracted price.
—Technical support work for property management, inventory management, material coordination, or similar work involving knowledge of supply operations, program requirements, established policies, management techniques, and ability to deal with a variety of operating officials regarding program needs.

GS-7 Level

A. In addition to the requirements for GS-5, a background which includes one year of work no lower than GS-5 or the equivalent and demonstrates:
—Knowledge of commonly used contracts and clauses, methods and pertinent

// BEST COPY AVAILABLE

regulatory and guideline material sufficient to perform assignments of an advanced trainee nature for which there are clear precedents;

—Knowledge of pertinent product characteristics and sources of supply sufficient to identify commercial or other established sources and to solicit bids or quotations for repetitive items or services when specifications are well established, e.g., office machines, automotive equipment, medical supplies, or minor repairs of buildings or roads.

—Knowledge of price analysis techniques and commercial business practices sufficient to evaluate price data on the basis of comparative prices, standard price lists, or previous prices.

—Skill in summarizing, analyzing, and evaluating data to prepare documentation, justifications, and terms and conditions.

—Demonstrated skill in forming effective interpersonal relationships and coordinating work efforts.

OR

B. Successful completion of one full academic year of graduate education in an accredited college or university with major study in a directly related field, e.g., procurement, business administration, marketing, industrial management, or accounting.

OR

C. A combination of graduate study, as indicated in B above, and a background of work experience which demonstrate possession of the knowledge and skill required to perform the work of the position to be filled.

OR

D. Meeting one of the superior academic achievement provisions at the baccalaureate level provided the pertinent criteria in Section III, Part II, of this handbook are fully met.

In addition to directly applicable experience obtained at the next lower grade in the career ladder, the knowledge and skill may have been acquired through progressively responsible work experience in activities that are closely related to procurement, such as accounting, auditing, program analysis, grants management, logistics management, supply, engineering, manufacturing, quality assurance, industrial specialist, production control, equipment evaluation, inspection, industrial property management, operations research, or statistics.

Such experience is creditable when the work requires: (1) familiarity with basic contracting work methods and operating procedures and (2) familiarity with basic business practices sufficient to perform the duties of the position to be filled.

GS-9 Level

A. In addition to the requirements for GS-7, a background which includes one year of work no lower than GS-7 or equivalent and demonstrates that the candidate possesses the following:

—Knowledge of established principles and accepted practices of contracting work including the application of formal advertising and negotiation techniques sufficient to develop, administer, or terminate contracts which are well precedented;

—Knowledge of a variety of moderately complex contracts (e.g., firm fixed-price, indefinite quantity, indefinite delivery or cost-plus-fixed-fee); the use of applicable clauses and provisions (e.g., special packaging instructions, use of Government-furnished property, or first article testing or preproduction samples); and special program considerations (e.g., small and disadvantaged business set-asides or labor surplus areas) sufficient to recommend contract award or monitor contract performance.

BEST COPY AVAILABLE

—Knowledge of business practices and market conditions, including commercial market sources or other competitive sources to obtain adequate price competition or establish reasonableness of price, and to evaluate contractor responsiveness and responsibility sufficient to recommend contract award.

—Knowledge of price and/or cost analysis sufficient to evaluate price and/or cost proposals when historical data and precedents are available and applicable for standard commercial or specialized items having detailed specifications or special performance requirements, e.g., spare parts, hospital equipment, items modified to specification, or minor alterations and maintenance of buildings and equipment.

—Demonstrated skill in interpreting and explaining a variety of procurement procedures and technical requirements, in negotiating preaward or postaward contractual actions, and in making independent judgments or evaluations concerning such things as the extent to which contractor's proposals, management systems, or performance conform to requirements.

OR

B. Successful completion of two full academic years of graduate education or completion of all requirements for a master's or equivalent degree in an accredited college or university with major study in procurement or in a field directly related to the position to be filled. Directly related means that the completed course work provided both the type and level of knowledge and skills required in the work of the position to be filled.

OR

C. An appropriate combination of graduate study and work experience which provided the required knowledge and skill.

OR

D. Completion of all requirements for an LL.B. or J.D. degree.

AND

E. Evidence that the candidate possesses any selective factors appropriate to the position to be filled.

Alternate types of work experience which may have provided some or all of the knowledge and skill include progressively responsible work in private industry in such capacities as a contract specialist, accountant or auditor, or other meaningful, comparable functions. Such experience should have clearly equipped candidates with the knowledge and skill applied in the position to be filled.

In addition, work of a responsible nature in activities closely related to contracting, such as are described above for GS-7, may have provided some or all of the required knowledge and skill. However, the knowledge and skill required are of a higher level and more specialized nature than those at GS-7, which typically involve advanced trainee assignments. Therefore, candidates for GS-9 who offer such experience will be required to demonstrate knowledge and skill equivalent to those described in A above through significant and concrete work accomplishments, e.g., special projects, working groups, or detail assignment which involved work related to contracting.

GS-11 Level and Above

A. In addition to the requirements for GS-9, for the GS-11 level and above, a background which includes one year of work experience or equivalent to the next lower grade in the normal line of promotion, and which demonstrates possession of the following:

—Thorough knowledge of contracting methods, contract types, and contracting principles and procedures applicable to the full range of preaward, postaward, or price/cost analysis activities involving complex and diversified

BEST COPY AVAILABLE

products, services, or construction (e.g., engineering and manufacturing requirements of major types of equipment, technical services or services involving major equipment and vehicle overhaul, research and development including technology development or demonstration projects, design and construction of buildings requiring architect and engineering services, complex computerized management information and process control systems or a system in support of research and development, or large-scale procurements of specialized commodities or services to meet the consolidated requirements of the agency, department, or departments).

—Familiarity with business practices and market conditions applicable to program and technical requirements sufficient to identify or develop new sources; evaluate the responsibility of the contractor to perform the contract in terms of present commitments, financial soundness, adequacy of management systems, and capacity of facilities; determine the reasonableness of price and/or cost proposals including evaluation of individual cost elements; evaluate the progress and performance of the contractor; or evaluate the extent of work completed and negotiate settlements.

—Or for some positions—

—Intensive and detailed knowledge of special programs or a specialized area of contracting and skill in applying this knowledge to the resolution of complex problems or development of contracting plans or procedures in the role of a technical specialist or consultant.

—Thorough knowledge of trends, program requirements, and operating policies and procedures to coordinate plans and programs with a variety of related activities, e.g., program or technical offices, other contracting specialists, legal counsel, small and disadvantaged business representatives, auditors, transportation specialists, subordinate activities, or higher headquarters.

AND

B. Evidence of possession of any selective factors appropriate to the position to be filled.

The knowledge and skill required for positions at GS-11 and above are typically gained through progressive work assignments in the GS-1102 series. This does not preclude obtaining directly comparable knowledge and skill through work in other series. For example, in some instances engineers or industrial property management specialists perform substantial analyses, technical evaluations, and monitoring functions of contractors performing work for the Government, sufficient to obtain qualifying experience for this occupation. Responsible experience in private industry contracting work may also have provided the requisite knowledge and skill.

SUPERVISORY POSITIONS

For supervisory positions use the qualifications standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X-118 in conjunction with this standard.

SELECTIVE FACTORS

Some contract specialist positions require highly specialized knowledge and skill above that provided by application of the basic qualification standard to the extent that these become a primary consideration in identifying qualified candidates. In such

BEST COPY AVAILABLE

SPECIAL EDUCATION SERIES [1]

—Special Education Teacher, GS-5/11
—Special Education Specialist, GS-5/11
—Supervisory Special Education Teacher, GS-11 and above
—Supervisory Special Education Specialist, GS-11 and above

DESCRIPTION OF WORK

This series includes positions which require professional knowledge and skill in a recognized specialty to teach exceptional students such as the handicapped, retarded, gifted, or emotionally disturbed.

For further information about the nature of the work performed by employees in this series, see the series coverage standard for the Special Education Series, GS-1728, and the group coverage standard for positions in the Education Group, GS-1700.

BASIC REQUIREMENTS FOR ALL GRADES

Professional knowledge of teaching and learning theories, principles, and techniques as they apply to exceptional students as evidenced by:

a. Completion of a full four year course of study leading to a bachelor's degree at an accredited college or university which included or was supplemented by:

1. Professional education courses which included supervised student teaching *and* at least one course in each of the following areas:
   (a) general psychology,
   (b) human development,
   (c) history and/or philosophy of education, and
   (d) teaching methods and techniques (elementary or secondary).

AND

2. 24 semester hours, or two full semesters, or the equivalent of undergraduate or postgraduate course work in special education which included at least one course, such as a survey course, covering the teaching of exceptional students *and* courses for the appropriate field or fields of specialization covering the following:
   (a) student teaching or a practicum,
   (b) characteristics,
   (c) diagnosis, and
   (d) methods.

Examples of fields of specialization include:
—Educable mentally handicapped,
—Trainable mentally handicapped,
—Learning disabilities,
—Social/emotional problems,
—Deaf and hard of hearing,
—Physically handicapped, or
—Speech and language impaired.

Fields of specialization may be either broader or narrower depending on the nature of the positions to be filled.

ALTERNATE REQUIREMENT

Candidates may substitute for the basic requirement an alternate requirement of at least 5 years of experience that would be appropriately classifiable in this series. (See the description of work in this standard and in the position classification standard for this series.) To meet the alternate requirement, the 5 or more years of experience must have demonstrated (1) thorough knowledge of the principles underlying the professional work of this series, and (2) understanding, both theoretical and practical, of the methods and techniques applied in performing professional work in this series. This experience must have been of such character and diversity to be a satisfactory substitute for the required education. The experience must have demonstrated that the applicant has acquired a thorough knowledge of the fundamental principles and theories of the work and that the candidate possesses an understanding of the field comparable to that normally acquired through successful completion of a full course of study in an accredited college or university. This alternate requirement is designed to provide appropriate consideration of the qualifications of candidates who have gained

[1] This series covers certain positions formerly covered by the qualification standard for the Education and Vocational Training Series, GS-1710.

BEST COPY AVAILABLE

professional knowledge and skill through nontraditional or unusual experience paths.

If a candidate meets the alternate requirement, one year of the highest level of work performed may be used to determine the grade level at which the candidate qualifies.

ADDITIONAL EXPERIENCE AND EDUCATION REQUIREMENTS

Requirement for GS-5

Applicants must meet the *Basic or Alternate Requirements For All Grades above.*

Requirements for GS-7 and above

In addition to the *Basic or Alternate Requirements for All Grades* above, applicant must demonstrate professional knowledge and skill at the appropriate level evidenced by *experience* in the appropriate specialized field of special education as follows:

For positions at:	*one academic year equivalent to—*
GS-7	GS-5 or above.
GS-9	GS-7 or above
GS-11	GS-9 or above
GS-12 and above	The next lower General Schedule grade.

Substitution of Education for Experience

Alternately, applicants may qualify for GS-7 or GS-9 grade levels by completing post-graduate course work directly related to the special education speciality field(s) of the position being filled as follows:

	Completion of—
GS-7	1 year of full-time graduate education.
GS-9	2 years of full-time graduate education or all requirements for a master's or equivalent degree.

SELECTIVE PLACEMENT AND QUALITY RANKING

This series covers a variety of positions some of which may require specialized knowledges and skills not identified in this standard. In appropriate cases, selective factors may be constructed to indicate those knowledges and skills considered *essential* to produce a list of eligibles qualified to perform the duties of the positions satisfactorily. The selective factors for a position should represent the *basic* qualifications for the job and must be *demonstrably job-related* and reflected in the duties and responsibilities assigned to the position. Selective factors must represent knowledges or skills required of a candidate at the time of entry into a position or those which could not be learned without a significant amount of training. An example of a selective factor that may be required is fluency in a language, other than English.

For some positions in this series, especially at the GS-9 and above levels, agencies may request the use of specific quality ranking factors to identify the *better qualified* candidates from a group of persons basically qualified for a position. Properly identified and justifiable quality ranking factors should present a qualification pattern which would most likely assure superior performance in a position. Quality ranking factors also must be *directly related* to the duties and responsibilities of the position and shown to be predictive of superior performance. An example of a quality ranking factor may include knowledge and skill in working in a particular area such as curriculum development, instructional systems design, training devices development, or administration of a special education program.

For filling positions involving administration or management of special education programs, additional credit may be given to applicants who have completed the education and experience requirements for an administrative exceptional student certificate recognized by a State, U.S. possession, U.S. territory, or the District of Columbia. Such certification typically is based on several years of professional experience in the field of special education and a course of study in special education administration leading to a master's degree.

BEST COPY AVAILABLE

EDUCATION SERVICES SERIES [1]

—Education Services Specialist GS-5/15
—Guidance Counselor, GS-9/11
—Supervisory Education Services Specialist, GS-11/15
—Supervisory Guidance Counselor, GS-11/12

DESCRIPTION OF WORK

This series includes professional positions the duties of which are to administer, supervise, promote, coordinate, conduct or evaluate programs, activities, or opportunities designed to provide individualized career-related or self-development education plans. The work requires knowledge of education theories, principles, processes, and practices of secondary, adult, and continuing education. Some positions require skill in counseling students or enrollees to establish educational and occupational objectives.

There are two types of positions included in this series that are covered by this standard, i.e., Education Services Specialist and Guidance Counselor. Positions which direct or conduct an education services program for a local installation or higher headquarters, provide liaison services to educational institutions, or monitor developments in the educational field are titled *Education Services Specialist.* Positions which provide counseling services to elementary, secondary, or adult students in developing educational or vocational career plans are titled *Guidance Counselor.*

For further information about the nature of work performed by employees in the Education Services Series, see the classification standard for this series. The sections in that standard entitled Occupational Information and Grading Positions provide examples of duties characteristic of the series and criteria to evaluate the difficulty level of those duties, respectively. This guidance should prove helpful in evaluating the quality of experience a candidate has gained outside of the Federal Government, or in any other position outside of the General Schedule.

[1] This standard covers certain positions formerly included in the Education and Vocational Training Series, GS-1710, dated April 1969 and revised, in part, February 1980.

BASIC REQUIREMENTS FOR ALL GRADES

Applicants for *Education Services Specialist and Guidance Counselor* positions at all grades must meet the requirements below:

Successful completion of a full four year course of study leading to a bachelor's degree from an accredited college or university which included or was supplemented by at least eight undergraduate or graduate level courses as described below:

1. At last one course in (a) and (b).
   (a) *Tests and measurement.* Study of the selection, evaluation, administration, scoring, interpretation, and uses of group and individual aptitude, proficiency, interest and other tests.
   (b) *Teaching methods.* Study of teaching strategies and learning styles of the adult learner. Includes determining adult performance levels, learning activities for adults and evaluating performance.

AND

2. The remaining six courses may be in any one or combination of the following areas:
   (1) *Educational program administration.* Study of the foundation and methods in organizing for adult and continuing education programs. Topics include staffing, planning, programming, budgeting, and methods for determining market for programs. Also covers evaluation of administrative and academic performance.
   (2) *Curriculum development or design.* Study of the principles and techniques for development of curricula for adult or vocational education programs.
   (3) *Adult education.* Study of the adult as a learner. Teaching-learning theories for adults. Models and procedures for planning, designing,

17 BEST COPY AVAILABLE

managing and evaluating adult learning activities.

(4) *Guidance and counseling.* Study of the purposes and methods in counseling and guidance. Includes the role of the counselor in various settings, approaches to counseling, uses of tests in the counseling situation.

(5) *Career planning.* Study of career development learning activities, systems, approaches, program coordination, use of educational and community resources, and vocational counseling systems.

(6) *Occupational information.* Study of theories of occupational choice and vocational development and their application to the guidance process. Includes career education and its implication for career guidance services. Identification and utilization of various types of occupational information and resources.

ALTERNATE REQUIREMENT

Candidates may substitute for the basic requirement an alternate requirement of at least 5 years of experience that would be appropriately classifiable in this series. (See the description of work in this standard and in the position classification standard for this series.) To meet the alternate requirement, the 5 or more years of experience must have demonstrated (1) thorough knowledge of the principles underlying the professional work of this series, and (2) understanding, both theoretical and practical, of the methods and techniques applied in performing professional work in this series. This experience must have been of such character and diversity to be a satisfactory substitute for the required education. The experience must have demonstrated that the applicant has acquired a thorough knowledge of the fundamental principles and theories of the work and that the candidate possesses an understanding of the field comparable to that normally acquired through successful competition of a full course of study in an accredited college or university. This alternate requirement is designed to provide appropriate consideration of the qualifications of candidates who have gained professional knowledge and skill through nontraditional or unusual experience paths.

If a candidate meets the alternate requirement, one year of the highest level of work performed may be used to determine the grade level at which the candidate qualifies.

ADDITIONAL EXPERIENCE AND EDUCATION REQUIREMENTS

For GS-5

The basic or alternate requirements above, which apply to all grades, are fully qualifying for GS-5.

For GS-7

Applicants for GS-7 positions must meet the requirements of A or B below:

A. One year of satisfactory performance in a GS-5 or equivalent position that is directly related to the position being filled.

OR

B. Successful completion of one full academic year of graduate education in a field directly related to the position being filled such as educational psychology, adult education, educational administration, educational counseling, or other similarly related areas.

For GS-9

Applicants for GS-9 positions must meet the requirements of A or B below:

A. One year of satisfactory performance in a GS-7 or equivalent position that is directly related to the position being filled.

OR

B. Successful completion of two full academic years of graduate education or all requirements for a master's or equivalent degree, in a field directly related to the

BEST COPY AVAILABLE

position being filled such as those listed above.

For GS-11

Applicants for GS-11 positions must have one year of satisfactory performance in a GS-9 or equivalent position that is directly related to position being filled.

For GS-12 and above

Applicants for positions at the GS-12 and above levels must have one year of satisfactory performance at the next lower grade or equivalent position that is directly related to the position being filled.

SELECTIVE AND QUALITY RANKING FACTORS

The Education Services Series covers a broad and varied spectrum of positions some of which may require specialized knowledges and skills not identified in this standard. In appropriate cases, selective factors may be constructed by agencies to indicate those knowledges and skills considered *essential* to produce a list of eligibles qualified to perform the duties of the position satisfactorily. The selective factors requested for a position should represent the *basic* qualifications for the job and must be demonstrably job-related and reflected in the duties and responsibilities assigned to the position. Selective factors must represent knowledges and skills required of a candidate at the time of entry into a position or those which could not be learned without a significant amount of training. Examples of selective factors that may be required in education services positions, at any grade level, include a requirement for fluency in a language other than English.

For some positions in this series, especially at the GS-9 and above levels, agencies may request the use of specific quality ranking factors to identify the *better qualified* candidates from a group of persons basically qualified for a position. Property identified and justifiable quality ranking factors should present a qualification pattern which would most likely assure superior performance in a position. Quality ranking factors must also be directly related to the duties and responsibilities of the position and shown to be predictive of superior performance. Examples of quality ranking factors may include knowledge of a functional program, knowledge and skill is using a particular battery of tests, or knowledge of the problems and needs of a specialized group.

Additional guidance concerning the evaluation and documentation of selective and quality ranking factors is provided in FPM Chapter 332, Subchapter 4, and Appendix B.

PHYSICAL REQUIREMENTS—ALL LEVELS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases, a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters or adjusted work schedules.

Also, all positions involving operation of a Federal motor vehicle carry the additional medical requirements specified in the Federal Personnel Manual (FPM) Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidential Operators.

The physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

BEST COPY AVAILABLE

SUPERVISORY POSITIONS

Use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X–118 in conjunction with this standard.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For those positions in which operating a motor vehicle is essential to the efficient performance of the work, applicants are required to:

—possess, or obtain within 30 days of employment, a valid State driver's license, and

—qualify, after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency. (See FPM Chapter 930.)

BEST COPY AVAILABLE

5 years of experience that would be appropriately classifiable in this series. (See the description of work in this standard and in the position classification standard for this series.) To meet the alternate requirement, the 5 or more years of experience must have demonstrated (1) thorough knowledge of the principles underlying the professional work of this series, and (2) understanding, both theoretical and practical, of the methods and techniques applied in performing professional work in this series. This experience must have been of such character and diversity to be a stisfactory substitute for the required education. The experience must have demonstrated that the applicant has acquired a thorough knowledge of the fundamental principles and theories of the work and that the candidate possesses an understanding of the field comparable to that normally acquired through successful completion of a full course of study in an accredited college or university. This alternate requirement is designed to provide appropriate consideration of the qualifications of candidates who have gained professional knowledge and skill through nontraditional or unusual experience paths.

If a candidate meets the alternate requirement, one year of the highest level of work performed may be used to determine the grade level at which the candidate qualifies.

ADDITIONAL EXPERIENCE AND EDUCATION REQUIREMENTS

For GS-5

The basic or alternate requirements above, which apply to all grades, are fully qualifying for GS-5.

For GS-7

Applicants for GS-7 positions must meet the requirements of A or B below:

A. One year of satisfactory performance in a GS-5 or equivalent position that is directly related to the position being filled.

OR

B. Successful completion of one year of full-time graduate education in a field directly related to the position being filled such as educational or industrial psychology, educational technology, curriculum development, or other similarly related areas.

For GS-9

Applicants for GS-9 positions must meet the requirements of A or B below:

A. One year of satisfactory performance in a GS-7 or equivalent position that is directly related to the position being filled.

OR

B. Successful completion of two years of full-time graduate education or all requirements for a master's or equivalent, degree, in a field directly related to the position being filled such as those listed above.

For GS-11

Applicants for GS-11 positions must meet the requirements of A or B below:

A. One year of satisfactory performance in a GS-9 or equivalent position that is directly related to the position being filled.

OR

B. Successful completion of all requirements for a Ph.D. or Ed.D. in a field directly related to the position being filled such as those listed above.

For GS-12 and above

Applicants for positions at the GS-12 and above levels must have one year of satisfactory performance at the next lower grade or equivalent position that is directly related to the position being filled.

SELECTIVE AND QUALITY RANKING FACTORS

The Instructional Systems Series covers a broad and varied spectrum of positions some of which may require specialized knowledges and skills not identified in this standard. In

BEST COPY AVAILABLE

appropriate cases, selective factors may be constructed by agencies to indicate those knowledges and skills considered *essential* to produce a list of eligibles qualified to perform the duties of the position satisfactorily. The selective factor requested for a position should represent the *basic* qualifications for the job and must be demonstrably job-related and reflected in the duties and responsibilities assigned to the position. Selective factors must represent knowledges or skills required of a candidate at the time of entry into a position of those which could not be learned without a significant amount of training. Examples of selective factors that may be required in instructional systems positions, at any grade level, include a requirement for fluency in a language, other than English.

For some positions in this series, especially at the GS–9 and above levels, agencies may request the use of specific quality ranking factors to identify the *better qualified* candidates from a group or persons basically qualified for a position. Properly identified and justifiable quality ranking factors should present a qualification pattern which would most likely assure superior performance in a position. Quality ranking factors also must be directly related to the duties and responsibilities of the position and shown to be predictive of superior performance. Examples of quality ranking factors may include knowledge of a vocational occupation area, or knowledge and skill in developing specific types of training aids and devices.

Additional guidance concerning the evaluation and documentation of selective and quality ranking factors is provided in FPM Chapter 332, Subchapter 4 and Appendix B.

PHYSICAL REQUIREMENTS—ALL LEVELS

Applicants and employees must be physically and mentally able to efficiently perform the essential functions of the position without hazard to themselves or others. Depending on the essential duties of a specific position, usable vision, color vision, hearing, or speech may be required. However, in most cases a specific physical condition or impairment will not automatically disqualify an applicant for appointment. The loss or impairment of a specific function may be compensated for by the satisfactory use of prosthesis or mechanical aid. Reasonable accommodation also may be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters or adjusted work schedules.

Also, all positions involving operation of a Federal motor vehicle carry the additional medical requirements specified in the Federal Personnel Manual (FPM) Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operations and Incidential Operators.

These physical requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions.

SUPERVISORY POSITIONS

Use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X–118 in conjunction with this standard.

REQUIREMENTS FOR MOTOR VEHICLE OPERATION

For those positions in which operating a motor vehicle is essential to the efficient performance of the work, applicants are required to:

—possess, or obtain within 30 days of employment, a valid State driver's license, and

—qualify, after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency. (See FPM Chapter 930).

BEST COPY AVAILABLE

ing an individual's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual, Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

Motor vehicle operation

For those positions in which driving a motor vehicle is essential to the efficient performance of work, applicants are required to:

—possess, or obtain within 30 days of employment, a valid State driver's license; and

—qualify, after appointment, for authorization to operate motor vehicles in accordance with applicable U.S. Government regulations and with related requirements of the employing agency. (See FPM Chapter 930.)

Supervisory positions

For supervisory positions use the qualification standard of "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X-118 in conjunction with this standard.

Promotions

The provisions of 5 CFR 300 Subpart F, must be complied with concerning the rate at which employees may be promoted, irrespective of their qualifications.

MINIMUM QUALIFICATION REQUIREMENTS

GS-5 level

A. Three years of progressively responsible work experience, which includes one year of work at no lower than grade GS-4 or equivalent and demonstrates:

—ability to present technical information verbally or in written form;

—ability to collect and analyze data by making observations, relating observed data to established standards, and evaluating the significance of the collected data;

—ability to draw conclusions and make recommendations by analyzing facts and conditions, and making suggestions for corrections or improvement;

—ability to apply guideline material by reading and interpreting technical material and translating the guidance into specific actions;

—skill in dealing with others in a work relationship to accomplish a given purpose;

OR

B. Completion of a four year course in an accredited college or university leading to a bachelor's degree in any field;

OR

C. A time equivalent combination of experience and education as defined in A or B above. In combining education with experience, and academic year of study is equivalent to nine months experience.

The knowledge and skills required in A above may have been gained in a variety of administative, technical or investigative lines of work, in skilled trade or craft occupations, or substantive clerical work. Experience of a routine nature (i.e., work which primarily involved typing, filing, or procedural clerical work in which the employee is not directly concerned with the subject matter involved) or work in unskilled trades or laboring occupations is not qualifying.

While not all-inclusive, the following types of work experience are illustrative of those in which the basic abilities and underlying knowledge *may* have been acquired.

—Administrative or technical work that involved preparing nonroutine correspondence, reports, instructions, or similar material which included the use of basic technical terminology, such as that con-

BEST COPY AVAILABLE

cerned with the compilation of data or maintenance of specialized reference materials and case files.

—Work of a statistical nature that involved such things as performing various computations of data, summarizing results, and preparing reports or charts depicting pertinent relationships.

—Trade, craft, or other work that involved interpreting technical material to determine appropriate testing requirements.

—Responsible work that involved dealing with co-workers or subordinates to elicit their cooperation to perform specific tasks, or to comply with regulations, policies, or practices.

—Work that involved explaining, interpreting, and applying rules, regulations, and operating procedures to specific situations.

GS-7 level

A. A background which includes one year of work experience no lower than GS-5 or the equivalent and demonstrates:

—basic knowledge of quality assurance procedures and methods and the sources of pertinent regulatory and guideline material related to the functional activity supported by the quality program, sufficient to perform assignments of an advanced trainee nature for which there are clear precedents;

—knowledge of pertinent product characteristics, the sources of applicable quality requirements, and the factors relative to manufacturing processes or other operations which affect product quality sufficient to perform assignments of limited scope and complexity;

—demonstrated skill in reading and interpreting technical data such as blueprints, engineering drawings, product specifications, or technical manuals, and in applying these guidelines to the work;

—skill in summarizing, analyzing, and evaluating quality data, to prepare technical reports;

—demonstrated skill in forming effective interpersonal relationships and coordinating work efforts.

OR

B. One year of full-time graduate education in an accredited college or university with major study in related fields such as production management, business management, statistics, industrial technology, engineering, the physical sciences, or a discipline directly related to the specialization involved in the career pattern of the position to be filled, e.g., metallurgy, materials, or textile technology.

OR

C. A combination of graduate study, as indicated in B above, and a background of work experience which demonstrate possession of the knowledge and skills required to perform the work of the position to be filled.

OR

D. Meeting one of the superior academic achievement provisions at the baccalaureate level provided the major course of study is in a related field (see paragraph B above) and the pertinent criteria in Section III, Part II, of this Handbook are fully met.

In addition to directly applicable experience obtained at the next lower grade in the career ladder, the knowledge and skills *may* have been acquired through progressively responsible work experience in activities that are closely related to quality assurance such as manufacturing maintenance, supply engineering, and contract or procurement. Such experience is creditable when the work required: (1) familiarity with basic quality assurance work methods and operating procedures; (2) knowledge of the products or processes involved; (3) familiarity with inspection and testing methods pertinent to the work; (4) skill to interpret and apply technical specifications (e.g., blueprints, drawings, product

BEST COPY AVAILABLE

standards); and (5) written and oral communication skills. Related work areas in which such knowledge and skills may have been acquired include, but are not limited to, workload planning, production control, production or industrial engineering, procurement, equipment evaluation, inspection, supply, or statistical work.

GS-9 level

A. A background which includes one year of work experience at no lower than GS-7 or equivalent and demonstrates that the candidate possesses the following:
—practical knowledge of established principles, techniques, and accepted practices of quality assurance work; including the application of statistical sampling techniques, sufficient to perform assignments of moderate scope and complexity:
—practical knowledge of pertinent characteristics of the product(s) involved, the operations or processes affecting critical characteristics, test and inspection techniques, the techniques for assessing operations or processes to detect unsatisfactory conditions and skill to apply these knowledges to a variety of assignments of moderate scope and complexity;
—demonstrated skill in interpreting, and explaining a variety of technical requirements and in making independent judgments concerning such things as the extent to which procedures conform to requirements or that procedures are effective in controlling quality;
—knowledge of the functional relationships between quality assurance and the activity supported (e.g., a maintenance or supply/storage program) the respective roles of related activities (e.g., procuring office or engineering) and demonstrated skill in effecting coordination and obtaining compliance with quality requirements;
—demonstrated skill in developing quality data sources, recognizing discrepancies, detecting trends, investigating to develop additional or corroborative information, and preparing documented technical reports of findings.

OR

B. Completion of all requirements for a master's or equivalent degree or 2 years of full-time graduate education with major study in a directly related field. Directly related means that the completed course work provided both the type and level of knowledge and skills required in the work of the position to be filled. For example, completion of the above requirements in a specialized technology field or a scientific or engineering discipline may be appropriate for positions where the particular technology or engineering expertise is the paramount requirement.

OR

C. An appropriate combination of graduate study and work experience which provided the required knowledge and skills.

AND

D. Evidence that the candidate possesses any selective factors appropriate to the position to be filled.

Alternate types of work experience which *may* have provided some or all of the knowledge and skills include progressively responsible work in private industry in such capacities as a quality control specialist or quality control engineer. Such experience should have clearly equipped candidates with the knowledge and skills required in the position to be filled. For example, quality control employees in a Government contractor's organization may be required to learn and apply principles and techniques which are directly related to those applied by their counterparts in the Government's quality assurance program.

In addition, work of a responsible nature in activities closely related to quality assurance, such as are described for GS-7 above, may have provided some or all of

BEST COPY AVAILABLE

the required knowledge and skills. However, the knowledge and skills required are of a higher level and more specialized than those at GS-7, where positions typically involve advanced trainee assignments. Therefore, candidates for GS-9 who offer such experience will be required to demonstrate knowledge and skills equivalent to those described in A above through significant and concrete work accomplishments, e.g., special projects, working groups, or detail assignments which involve work related to quality assurance.

GS-11 level and above

A. A background which includes one year of work experience at or equivalent to the next lower grade in the normal line of promotion, and which demonstrates possession of the following:

—thorough knowledge of the full range of quality assurance concepts, principles, and methodology related to one or more functional specializations (e.g., in support of acquisition or maintenance programs) and demonstrated skill in the application of this knowledge to independently plan and perform varied quality assurance assignments;

—broad knowledge of the product or range of products involved, the manufacturing methods and techniques, special processes, test and performance requirements and skill in developing plans and programs to insure achievement of quality requirements in one or more phases of the product's life cycle;

—Or for some positions—

—intensive and detailed knowledge of a broad product area (e.g., electronics equipment) or special process areas (e.g., materials treatment) including applicable product specifications and standards (military/Federal and industrial) and the controls necessary for insuring quality, and considerable skill in applying this knowledge to the resolution of complex quality problems in the role of a technical specialist or consultant;

—thorough knowledge of operating practices, policies, and procedures of related functional disciplines (e.g., engineering, contract administration) and skill in coordinating plans and programs with these activities.

AND

B. Demonstrated possession of any selective factors appropriate to the position to be filled.

The knowledge and skills required for positions at GS-11 and above are typically gained through progressive work assignments in the Quality Assurance Series. This does not preclude the acquisition of directly comparable knowledge and skills through work in other series. For example, in a number of instances engineers perform quality functions requiring the same skills that are applied by employees in this occupation. Similarly, other scientific disciplines, such as metallurgy, provide experience which would be applicable to commodity or technical process specialist positions in this occupation. Responsible experience in private industry quality control work (e.g., in a supervisory or managerial capacity) may also have provided the requisite knowledge and skills.

EVALUATING CANDIDATES

For both competitive and inservice placement, the evaluation of experience, training, and education should focus on those factors which reflect a candidate's ability to successfully perform the duties of the position to be filled. The required amount of experience will not in itself be accepted as proof of qualification. FPM Supplements 335-1 and 271-2 contain detailed information on candidate evaluation methods.

The evaluation process should start with an analysis of the duties and responsibilities of the position to determine the related knowledge, skills, and abilities. The analysis should

BEST COPY AVAILABLE

also identify any selective factors essential to satisfactory performance and the appropriate quality ranking factors, i.e., those factors which distinguish the better qualified candidates from those who meet only the minimum requirements. Quality ranking factors will vary according to the nature and grade level of the position to be filled.

BEST COPY AVAILABLE

COMPLETED
21
PM 1.8/3:X-118/Trans. 211

UNITED STATES

OFFICE OF PERSONNEL MANAGEMENT

Handbook X–118

Qualification Standards for Positions Under the General Schedule

TRANSMITTAL SHEET NO. 211

November 1985

IES
270
ORIGINAL

This transmits the following qualification standards for inclusion in Part III of this Handbook:

GS–025, Park Ranger Series. This standard revises and supersedes the single-agency standard for Park Management Series, GS–025, published August 1969. It also incorporates into it and supersedes the Park Technician Series, GS–026, August 1969 (TS–127).

GS–203, Personnel Clerical and Assistance Series. This standard revises and supersedes the standard for the Personnel Clerical and Assistance Series, GS–203.

GS–651, Respiratory Therapist Series. This is a new series and new qualification standard. The standard supersedes the qualification guidance for Inhalation Therapy Technician positions currently contained in the qualification standard for the Medical Machine Technician Series, GS–649, published in April 1973.

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402

BEST COPY AVAILABLE

TABLE OF CHANGES

Remove	Issue date	Insert
GS–025, Park Management Series (single-agency standard).	Aug. 1969	GS–025, Park Ranger Series, Nov. 1985 (TS–211).
GS–026, Park Technician Series.	Aug. 1969 (TS–127)	
GS–203, Personnel Clerk and Assistance Series.	p. 1, Apr. 1973 (TS–145); p. 2, Dec. 1975 (TS–156); p. 2.01, Apr. 1973 (TS–145); p. 3, Jan. 1978 (TS–164); p. 4, July 1966 (TS–100).	GS–203, Personnel Clerk and Assistance Series, Nov. 1985 (TS–211).
		GS–651, Respiratory Therapist Series, Nov. 1985 (TS–211).

BEST COPY AVAILABLE

Park Ranger, GS-1/15

Park Manager, GS-9/15

Park Managers and Rangers supervise, manage, and perform work in the conservation and use of resources in National Parks and other Federally managed areas. Park Rangers carry out various tasks associated with forest or structural fire control; protection of property; gathering and dissemination of natural, historical, or scientific information; development of interpretive material for the natural, historical, or cultural features of an area; demonstration of folk art and craft; enforcement of laws and regulations; investigation of violations, complaints, trespass/encroachment, and accidents; search and rescue; and management of historical, cultural, and natural resources such as wildlife, forests, lakeshores, seashores, historic buildings, battlefields, archeological properties, and recreation areas.

EXPERIENCE, EDUCATION AND TRAINING REQUIREMENTS

Applicants must have the kinds, quality, and amount of experience, education, and/or training indicated in the following paragraphs for each grade.

GS-1 ——
- No experience, training, or education is required. Candidates must be interested in and willing to learn park ranger work and show evidence of likelihood of success in these assignments.

GS-2 ——
- Six months of general experience; or
- Graduation from a full four-year or senior high school or possession of a General Educational Development High School Equivalency Certificate.

GS-3 ——
- One year of general experience; or
- Completion of 1 year of study in an accredited college or university that included or was supplemented by at least 6 semester hours of course work in any one or a combination of the core curricula described at the GS-5 level.

GS-4 ——
- One year of specialized experience; or
- Completion of 2 years of study in an accredited college or university that included or was supplemented by at least 12 semester hours of course work in any one or a combination of the core curricula described at the GS-5 level; or
- Any equivalent combination of experience, education, and training.

GS-5 ——
- Two years of specialized experience; or
- Completion of a full four-year course of study in an accredited college or university leading to a bachelor's or higher degree that included or was supplemented by 30 semester hours of course work in any one or a combination of the following: any field-oriented natural science, natural resource management, earth science, history, archeology, anthropology, park and recreation management, or other closely related subjects pertinent to the management and protection of natural and cultural resources; or
- Any equivalent combination of experience, education, and training.

ADDITIONAL SPECIALIZED EXPERIENCE, EDUCATION AND TRAINING REQUIREMENTS

In addition to the requirements for grade GS-5, the following amounts of specialized experience and/or education are required for grades GS-7 and above:

GS-7 ——
- One year of specialized experience; or
- Completion of 1 full academic year of graduate education in a subject described at the GS-5 level; or
- Any equivalent combination of experience, education, and training.

GS-9 ——
- Two years of specialized experience; or
- Completion of all requirements for a master's or equivalent degree, or 2 full academic years of graduate education, in a subject described at the GS-5 level; or
- Any equivalent combination of experience, education, and training.

BEST COPY AVAILABLE

GS–11 and above —— • Three years of specialized experience; or
• Any equivalent combination of experience, education, and training.

Definition of Terms

• General experience———— This is any experience which provides evidence of one or more of the following abilities:
—The ability to deal effectively with individuals in a courteous, tactful manner in a variety of work environments, including stress situations;
—The ability to convey information orally to groups in formal and informal settings; and/or
—The ability to compose clear accurate reports or correspondence.

• Specialized experience —This is technical, administrative, or scientific experience gained in park operations, fish and wildlife management, recreation management, historic preservation, natural and cultural resource management, or park-related work. Examples of qualifying experience include, but are not restricted to, (1) experience as a park guide or tour leader; (2) experience in law enforcement and investigative work in a park, recreation, or conservation area; (3) experience as a technical aid or assistant in archeological or historical preservation research and development work; (4) experience as an aid or technician in forestry and fire management activities in a park, recreation, or conservation area; (5) experience in carrying out a variety of complex maintenance activities as might be gained as a maintenance supervisor or manager in a park or conservation area; (6) comparable experience as an aid, guide, or technician in the conservation, interpretation, and use of parks, forests, outdoor recreation areas or other lands or resources used by the public; (7) experience as an administrative officer in administrative fields such as budget, personnel, finance, and property management in a park or recreation area; or (8) experience as a management assistant or program specialist in development and implementation of policy relating to protection and management of park areas and to overall program coordination and policy development.

Alternate Requirements

Superior academic achievement at the baccalaureate level is qualifying at grade GS–7. A combination of superior academic achievement at the baccalaureate level and 1 year of specialized experience is qualifying at grade GS–9. In each case, the pertinent criteria in section III of part II, Instructions to Users, of this Handbook must be met.

QUALITY AND LEVEL OF EXPERIENCE

For positions at any grade the amount of experience will not in itself be accepted as proof of qualification. The candidate's record of experience and training must show the personal qualities and the knowledges, skills, and abilities appropriate to the duties and responsibilities of the grade for which the candidate is being considered.

BEST COPY AVAILABLE

3A

In evaluating each candidate's experience and training, attention should be given to the following factors:

1. Knowledge of general operations, conservation, or outdoor recreation programs pertinent to the duties of the position.
2. Knowledge of subject-matter fields pertinent to the work to be performed.
3. Ability to make constructive suggestions for modification or improvement of methods, procedures, plans, techniques, equipment, or programs.
4. Ability to work independently and plan day-to-day activities.
5. Ability to meet and deal effectively with visitors.

For eligibility at grade *GS-4*, at least 6 months of the required specialized experience must have been comparable in difficulty and responsibility to grade GS-3 in the Federal Service.

For eligibility at grade *GS-5*, candidate must have had at least 1 year of specialized experience comparable in level of difficulty and responsibilty to grade GS-4 in the Federal Service.

For eligibility at *grades GS-7 through GS-11*, at least 6 months of the required experience must have been at a level of difficulty and responsibility comparable to that of the next lower grade, or one year comparable to the second lower grade, in the Federal Service.

For eligibility at *grades GS-12 and above*, at least 1 year of the required experience must have been at a level of difficulty and responsibility comparable to that of the next lower grade in the Federal Service.
(See also Federal Personnel Manual, Chapter 300, Subchapter 6.)

SUPERVISORY POSITIONS

For supervisory positions, the qualification standard for "Supervisory Positions in General Schedule Occupations" in part III of this Handbook also should be used.

SELECTIVE PLACEMENT

A varying amount of selectivity is required to fill certain positions in this series. Some positions require that particular kinds or combinations of knowledges be applied more intensely than in other positions. In these cases, therefore, it is appropriate to use selective placement techniques, i.e., only those candidates who have appropriate education, training, or experience should be referred for employment consideration. The use of selective placement factors is authorized and encouraged for filling these kinds of positions. Where selective factors are used, however, they must be demonstrably related to the knowledge, skills, abilities, and other characteristics considered essential to produce candidates capable of satisfactorily performing the duties of the positions to be filled; also the factors should represent minimum acceptable qualifications for these positions.

The appropriateness of the factors should be reflected in the duties and responsibilities of the position as presented in the position description or in other official information provided by the employing agency. Additionally, the use of these factors must not result in the establishment of an unreasonably high or overly restrictive requirement. That is, the proposed selective factors should not be used if it is evident that other eligibles could perform satisfactorily after a brief orientation period. (In some cases a selective factor may not be fully justified as such but may properly be used as a quality ranking factor.)

BASIS OF RATING

At grade GS-1, candidates will be rated on their willingness to perform simple procedures, their dependability, and their ability to work safely.

At grades GS-2 and above, candidates will be rated on the basis of the quality and extent of their total experience, education, and training. Ratings will be based on statements in the application form and any addi-

BEST COPY AVAILABLE

4

tional evidence received by the Office of Personnel Management.

INSERVICE PLACEMENT ACTIONS

Waiving the Specialized Experience Requirement at GS-4 and GS-5

For inservice placement actions only, the experience requirement for positions at grades GS-4 and GS-5 may be waived for lateral reassignment of employees in related occupations provided:

1. The employee has had experience which has provided knowledge of the work of the position for which the employee is being considered.

AND

2. A review of the employee's experience and performance evidences that the employee has demonstrated the skills and abilities necessary to learn and successfully perform the work.

Park Manager and Other Supervisory Positions

Employees with administrative, professional, or managerial experience in programs or functions supporting and sustaining park operations (e.g., administrative management, facilities management, engineering, landscape architecture, or personnel management) and involving direct dealings with park managers, may be excellent candidates for park manager positions where the employee's *total* background demonstrates a good understanding of park management and operational practices and techniques.

PHYSICAL REQUIREMENTS

The following requirements apply to employees occupying positions covered by this standard as well as to applicants for such positions:

Applicants and employees must have the capacity to perform the essential functions of the position without risk to themselves or others. In most cases, a specific medical condition or impairment will not automatically disqualify an applicant or employee. A physical condition or impairment may be disqualifying if the condition, for good medical reason, precludes assignment to or warrants restriction from the duties of the specific position. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation shall also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules.

In positions where there is exposure to environmental agents for which there are occupational/environmental standards which require protective measures or medical surveillance, applicants and employees shall undergo initial and periodic medical evaluation in accordance with the surveillance requirements.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

BEST COPY AVAILABLE

Personnel Actions Clerk

Staffing Clerk

Personnel Clerk

GS-4/6

Classification Assistant

Employee Development Assistant

Employee Relations Assistant

Labor Relations Assistant

Staffing Assistant

Personnel Assistant

GS-5 and above

Supervisory Positions, GS-5 and above

NOTE: For positions at the GS-3 level and below, use the qualification standard for the General Administrative, Clerical, and Office Services Group, Clerk (various positions), GS-300-1/3.

DESCRIPTION OF WORK

Employees in this occupation perform, lead, or supervise (1) clerical work requiring knowledge of civilian personnel terminology, specified requirements, procedures, and functions; and/or (2) limited technical work requiring a practical knowledge of one or more civilian personnel management specialties.

Clerical Positions

Clerical work involves processing documents; correcting inaccuracies on forms; coding data for computer processing; providing standard information about personnel functions, procedures, or requirements; abstracting data from records in compiling recurring reports; and similar support duties following clear requirements and conditions.

—*Personnel Actions Clerks* effect official personnel actions and related documents for an appointing authority and control master personnel records.

—*Staffing Clerks* assist in examining, placement, or staffing activities by screening job applications, maintaining competitor inventories or registers, providing standard job information, assisting in pre-employment or merit promotion procedures, etc.

—*Personnel Clerks* perform clerical support work in one or more personnel areas such as classification, employee development, incentive awards, health and life insurance, or labor relations.

Assistant Positions

Assistant work requires a greater depth of personnel subject-matter knowledge than clerical work in order to seek out and make judgments in the use of established guidelines for the personnel specialty involved. Often the work requires oral and written communication skills. Assistants may also perform some continuing clerical assignments.

—*Classification Assistants* do limited technical work concerning the classification of positions in the organizations served.

—*Employee Development Assistants* do limited technical work that contributes to the training and development of employees in the organizations served.

—*Employee Relations Assistants* do limited technical work that contributes to the maintenance of productivity, motivation, morale, and discipline among the work force of the organizations served.

—*Labor Relations Assistants* do limited technical work that contributes to the maintenance of effective relationships with labor organizations representing local employees.

—*Staffing Assistants* do limited technical work concerning the examining or recruitment of applicants and the selection or placement of Federal employees.

—*Personnel Assistants* usually do limited technical work involving two or more of the specializations described above.

[1] This standard supersedes the standard for this series dated July 1966 and subsequently revised April 1973, December 1975, and January 1978.

BEST COPY AVAILABLE

Further information about nonsupervisory clerical and assistant work performed in this occupation may be obtained from the position classification standard for the Personnel Clerical and Assistance Series, GS-203.

Work-Leader Positions

Additional duties typically performed by work leaders may be obtained from the Work Leader Grade-Evaluation Guide.

Supervisory Positions

Supervisory duties and responsibilties are described in the Supervisory Grade-Evaluation Guide.

GENERAL REQUIREMENTS

Minimum Knowledges and Skills

This standard describes the minimum knowledges and skills required for each grade level and, in some cases, each specialization. To qualify at any level, candidates must demonstrate possession of the knowledges, skills, and special abilities essential for successful performance in the positions for which being considered.

Written Test Requirements

At grade GS-4, a written test of the abilities needed to learn and perform the duties of these positions is required for competitive appointment and for appointments from outside the register. A written test is not normally required for in-service placement actions. For information on when and how a test may be used for evaluating eligible in-service candidates, see FPM Supplement 335-1.

Selective Factors

Listed below are examples of selective factors which might be included as part of minimum qualifications when the level of skills required could not reasonably be acquired after entry on the job without undue interruption of the organization's production. Selective factors should be used only after verification that they relate to work behaviors in the positions being filled and, thus, are true skill requirements. See FPM chapter 332, subchapter 4 and appendix B, for additional information concerning the evaluation and documentation of selective factors.

1. *Skill in typing, taking and transcribing stenographic notes, or data transcribing.*

   When a typing, stenographic, or data transcribing skill requirement is at or above the minimum level of proficiency required by the appropriate competitive standard, use the qualification standard for the required skill level in conjunction with this standard.

2. *Skill in supervising.*

   For supervisory work, use the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of this handbook in conjunction with this standard.

3. *Skill in communications.*

   This selective factor may apply when warranted by the nature, frequency, and importance of personal contacts; e.g.:

   a. *Skill in interviewing* might be a selective factor for a classification assistant position requiring the conduct of job audits to develop facts for position descriptions; or

   b. *Skill in informal counseling* might be a selective factor for an employee relations assistant position requiring counseling of employees about poor credit records or abuse of sick leave.

Time-in-Grade Requirements

The time-in-grade restrictions in 5 C.F.R. 300, Subpart F, must be applied in advancement to positions in this occupation.

Physical Requirements

Applicants and employees must have the capacity to perform the essential functions of the position without risk to themselves or others. In most cases, a specific medical condition or impairment will not automatically disqualify an applicant or employee. A physical condition or impairment may be disqualifying only if the condition, for good medical reasons, precludes assignment to or

BEST COPY AVAILABLE

warrants restriction from the duties of the specific position. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation shall also be considered in determining an applicant's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or restructuring, provision of readers and interpreters, or adjusted work schedules. In positions where there is exposure to environmental agents for which there are occupational/environmental standards which require protective measures or medical surveillance, applicants and employees shall undergo initial and periodic medical evaluation in accordance with surveillance requirements.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in FPM Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

Sources of Information for Evaluating Candidates

Examiners and staffing specialists should be knowledgeable about the positions to be filled and use judgment in evaluating the evidence of required qualifications. A candidate's capability and possession of knowledges and skills may be demonstrated in a number of ways:

—Successful completion of assignments at the next lower grade in the normal line of promotion to the position being filled;
—Work in other positions or occupations which provided the same kind and level of knowledges and skills;
—Unpaid work for organizations such as civic groups or church groups which can be verified and evaluated as providing the applicable knowledges and skills;
—Education and training which provided the required skills;
—Passing a written test required for positions at grade GS-4; or
—Combinations of the above.

In addition to supervisory performance appraisals and evaluations, other potential sources of information about a candidate's qualifications include supplemental questionnaires, reference inquiries, and interviews with the candidate.

PART I [2]

MINIMUM EXPERIENCE AND EDUCATION REQUIREMENTS

The following chart shows the minimum qualifying experience required of candidates for personnel clerical and assistance positions.

Grade	Total Experience (years)	General Experience (years)	Specialized Experience (years)	Directly Related Experience (years)
GS-4	2	1	1	
GS-5	3	1	1½	½
GS-6	4	1	2	1
GS-7	5	1	3	1

General Experience

Experience which has demonstrated the candidate's ability to perform clerical duties satisfactorily. Such experience may be acquired through successful performance of work such as sorting and routing mail, maintaining office files or publications, posting records or keeping logs, addressing envelopes, ordering supplies, or referring telephone calls. Excess specialized and directly related experience may be applied toward meeting these general requirements.

Specialized Experience

a. *For Positions at GS-4*—Experience which has provided candidates with the basic

[2] This part is for use in considering applicants for competitive appointment to the Federal service or in-service applicants who may qualify solely or partially on the basis of education. See Part II for criteria which may be used in considering in-service applicants on the basis of experience.

BEST COPY AVAILABLE

skills necessary to process documents and apply or explain rules, conditions, or procedures. These skills may be acquired through successful work experience in one or more clerical situations such as bank teller, payroll clerk, voucher examiner, claims examiner, or personnel clerk.

b. *For Positions at GS-5 and Above*—Experience which has provided candidates with knowledge about civilian personnel functions and skill in applying and/or explaining personnel procedures or requirements. Progressive acquisition of these personnel knowledges and skills may be accomplished in one or more personnel related work settings.

Excess directly related experience may be applied toward meeting the requirements for specialized experience.

Directly Related Experience

For positions at GS-5 and above, experience which shows that candidates possess knowledges, skills, and abilities related to the same specialization(s) as the position being filled as demonstrated through successful work experience in that specialization.

This requirement may be waived at the GS-5 level when there is positive evidence that the candidate possesses the necessary knowledges, skills, and abilities and can do the work without prolonged training. For example, because of similarities in the subject matter or methods used, the candidate's knowledges, skills, and abilities, although acquired in another specialty, can be transferred in doing work in the specialty of the position being filled. When this requirement is waived, the candidate must possess 2 years of specialized experience, one of which must have been at or equivalent to the GS-4 level.

Level of Experience

GS-4: For positions at GS-4, the 1 year of required specialized experience must have been at or equivalent to the GS-3 level.

GS-5: For positions at GS-5, 1 year of the required experience, i.e., 6 months of directly related and 6 months of specialized experience, must have been at or equivalent to the GS-4 level. When the requirement for directly related experience is waived, 1 year of specialized experience must have been at or equivalent to the GS-4 level.

GS-6 and above: For positions at GS-6 and above, the required 1 year of directly related experience must have been at or equivalent to the next lower grade.

Substitution of Education for Experience

For a maximum of 2½ years of required experience (1 year of general experience plus 1½ years of specialized experience), education above the high school level may be substituted on the following basis:

For general experience: ½ academic year for 6 months of experience.

For specialized experience:

—For the first year of specialized experience: ½ academic year for 6 months of experience.

—For an additional ½ year of specialized experience: 1 academic year for 6 months of experience.

—For a ½ year of directly related experience: 1 academic year for 6 months of experience.

Therefore, except as noted below, 4 full years of education above the high school level meet the requirements for grade GS-5. Education may not be substituted for the additional experience required to qualify for positions above grade GS-5.

NOTE: For positions involving personnel clerical work at the GS-5 grade level, no substitution of education may be made for directly related experience.

Education above the high school level is study successfully completed in an accredited junior college, college, or university; or full-time study successfully completed in an accredited business, technical, or commercial school for which high school graduation or the equivalent is a prerequisite. No credit will be allowed for study which has been obtained only or primarily in the basic skills of shorthand or typing or in refresher courses.

BEST COPY AVAILABLE

In crediting education gained in a junior college, college, or university, an academic year is normally equivalent to 30 semester or 45 quarter hours of study. Full time study in a business school should be credited on a month for month basis and is normally at least 20 hours of instruction per week.

PART II

ALTERNATE STANDARD FOR IN-SERVICE PLACEMENT [3]

This alternate standard for in-service placement has skill level descriptions which illustrate the basic kinds and minimum levels of skills for each grade level and, in some cases, each specialization. The minimum qualifications may also include selective factors appropriate for the position to be filled.

A. *Minimum Qualification Requirements for Personnel Clerical Positions*

For the GS-4 Clerical Level—

1. A background which includes at least one year of GS-3 clerical experience which involved the application of basic or commonly used rules and procedures to provide basic facts about established programs. Applicants must have experience which involved such work as:

—Preparing or processing documents which requires following a series of related steps; correcting obvious errors or omissions, or obtaining missing information from originators of forms; and varying procedures based on clearly recognizable differences such as names, codes, or nature of action.

—AND—

—Applying or explaining specific rules or conditions.

At this level, qualifying experience may have been acquired in a variety of clerical situations, such as but not limited to:

—Personnel Clerk: Completing commonly used personnel forms; initiating personnel action requests on the basis of information provided; screening applications for completeness; coding personnel or applicant data for computer processing; determining waiting periods; establishing and following up on suspense dates; determining eligibility for benefits or further consideration based upon review of readily obtained facts such as an honorable discharge from military service to support a claim for veterans' preference in an employment examination.

—Military Personnel Clerk: Processing personnel actions for arriving and departing military personnel; initiating documents for payments such as uniform allowance, or retroactive pay.

—Payroll Clerk: Determining the completeness, accuracy, and propriety of pay authorization documents; adjusting employee accounts for changes relating to bonds, taxes, health benefits, social security or retirement coverage, life insurance, union dues, savings allotments, allowances, etc.

—Voucher Examiner: Screening vouchers for clerical accuracy and completeness; determining the allowability of charges; answering questions about procedures for assembling and submitting bills or propriety of a normal expense.

—AND—

2. Evidence of possession of any selective factors appropriate to the position to be filled.

For the GS-5 Clerical Level —

1. A background of experience which includes at least 1 year of GS-4 clerical experience applying a standardized body of specialized personnel rules, conditions, requirements, and options to perform or explain a range of clerical procedures in the personnel specialty or program area of the position being filled.

Examples:

—*Personnel Actions Clerk*

[3] This Part may not be used when education alone or in combination with experience is used to qualify an applicant.

BEST COPY AVAILABLE

- Processing recurring official personnel actions for employees primarily on career-conditional, career, temporary, and limited appointments, and a few kinds of excepted appointments.

  This experience may have been acquired through the performance of a variety of duties, such as processing recurring official personnel actions for a segment of the organizations (e.g., various appointments, appointment conversions, promotions, reassignments, resignations, and within-grade increases); determining the applicability of Federal benefits, existence of supporting documentation and the accuracy of organizational and position data on personnel action requests; following up on due dates for completion of probationary periods or waiting periods for within-grade increases; computing service computation dates; processing changes in health and life insurance coverage; or assisting new hires in the completion of forms related to their appointments, etc.

NOTE: When routine clerical staffing duties or routine processing of retirements are part of a personnel actions clerk position being filled, skills relating to those duties should be used as ranking factors, not as minimum qualification requirements.

—*Staffing Clerk*

- Performing a range of standard clerical procedures related to the recruitment and staffing of new hires or movement of employees.

  This experience may have been acquired through the performance of a variety of duties, such as explaining local vacancies or positions for which applications are being accepted; distinguishing between general requirements for noncompetitive and competitive appointments; administering and scoring tests; coordinating employment interviews, preemployment physicals, and release dates; completing personnel action requests with nature of action, regulatory codes, etc., for various kinds of staffing personnel actions; and explaining the status of employment action to supervisors.
- Performing a range of standard clerical procedures relating to the local merit promotion program.

  This experience may have been acquired through the performance of a variety of duties, such as providing information on filing for promotion, rating of applications, time limits for filing, and the use of supervisory appraisals; determining the area of consideration; identifying eligibles for certification; and advising employees of their rankings. Related experience may have been acquired by maintaining a prepared inventory for a competitive examination, identifying eligibles for certificates, and advising applicants regarding their opportunities for employment and how to improve upon current ratings.
- Applying basic evaluation techniques for determining minimum eligibility of applicants for a few kinds of lower grade positions.

  This experience may have been acquired through the performance of work such as screening experience/training statements of applicants who have passed a written test for minimum qualifications involving basic skills; determining eligibility for veterans' preference and the final examination rating to be assigned each option and grade; and applying qualification standards to determine minimum eligibility for a few kinds of GS-2 and GS-3 positions.
- Explaining standard procedures and requirements for obtaining Federal employment opportunities and identifying examination announcements for a wide variety of positions in a geographical area.

  This experience may have been acquired through the performance of a variety of duties, such as explaining Feder-

BEST COPY AVAILABLE

al employment opportunities to members of the general public; determining the appropriate competitive examination announcements for specific jobs or occupations; explaining standard examining or employment requirements such as the form needed, time period for renewing eligibility, option for noncompetitive reinstatement, and veterans' preference in the employment process; and identifying employment offices in the geographic area.

—*Personnel Clerk*

- In classification clerical activities, experience in applying knowledges such as the structure of occupational codes for Federal civilian positions, the cyclic review reporting requirements, position numbering and control procedures, and the structure of the organizations served.

  This experience may have been acquired through the performance of such duties as routinely determining authorization of identical-additional positions; adjusting records to show establishment, cancellation or change in the classification of positions; explaining procedures for submission of reclassifications; preparing cyclic review listings and following up on overdue reports; and reconciling organzational files with master personnel files and drawing organizational charts.
- In employee development clerical activities, experience in applying knowledges such as the requirement and options for processing training requests, training contracts, and career development documents; and procedures for controlling training funds.

  This experience may have been acquired through the performance of a variety of duties, such as explaining procedures for submitting training requests; reviewing training requests for adequacy and resolving factual discrepancies; coding data for an automated system; coordinating notification of employees approved for training, dates of classes, and changes in schedules; verifying that training was completed; and maintaining records of monies spent for various kinds of training and career development.
- In incentive awards clerical activities, experience in performing a range of procedures for processing a variety of awards under the Incentive Awards Program; experience in adding and computing averages; and skill in composing correspondence using forms or sample letters.

  This experience may have been acquired through the performance of a variety of duties, such as explaining procedures for submission of incentive awards and quality step increase recommendations; determining the routing of suggestions for evaluation and following up on overdue comments; identifying employees eligible for length-of-service awards; writing letters acknowledging receipt of new employee suggestions or the Committee's decision not to adopt a suggestion; collecting statistical data and preparing computations such as the percentage of participation by organization.

—OR—

2. For lateral reassignment across personnel specialization lines, a background of experience which includes Federal civilian personnel clerical work at the GS-5 level which provided an understanding of the nature of personnel clerical work, the organizations served, the flow of work, approving authorities, etc., sufficient to perform the duties of the position being filled (e.g., depending upon the structure of work within personnel offices, personnel actions clerks may deal with kinds of data, documents, and processes similar to those in work performed by staffing clerks).

—AND—

3. Evidence of possession of any selective factors appropriate to the position to be filled.

BEST COPY AVAILABLE

For the GS-6 Clerical Level

1. A background which includes at least one year of GS-5 clerical experience performing a wide variety of interrelated or nonstandard procedural assignments and resolving a wide range of clerical problems in the same line of work as the position being filled.

   Example: Experience in determining the steps to be taken in processing a wide variety of unrelated personnel actions in different situations with different treatment; and in resolving problems such as discrepancies in employee pay resulting from errors at some point in the processing of documents leading to the pay check, or failure of health insurance carrier to honor employee claims for benefits

—AND—

2. Evidence of possession of any selective factors appropriate to the position to be filled.

B. Minimum Qualification Requirements for Personnel Assistant Positions

Personnel assistant positions often include continuing clerical assignments as well as limited technical work. Therefore, these positions are usually filled through in-service placement of personnel clerical employees in the same or related personnel organizations.

For the GS-5 Assistant Level—

1. A background which includes at least 1 year of GS-4 clerical experience applying a standardized body of specialized personnel rules, conditions, requirements, and options to perform or explain a range of technical and clerical procedures in the personnel specialty or program area of the position being filled. (See examples under the minimum requirements for the GS-5 Clerical Level.)

—OR—

2. For lateral reassignment across personnel specialization lines, a background of experience which includes Federal civilian personnel technical or clerical work at the GS-5 level which provided an understanding of the nature of substantive personnel work, conditions of employment, approving authorities, etc., in the position to be filled. For example, an employee at the GS-5 level in an equal opportunity specialty may have acquired an understanding of recruitment, selection, and promotion procedures; career ladders; and the kinds of forms and personnel records maintained to meet the minimum requirements for an assistant position at this level in the staffing or employee relations specialties.

—AND—

3. Evidence of possession of any selective factors appropriate to the position being filled.

For the GS-6 Assistant Level—

1. A background which includes at least 1 year of progressively responsible experience at the GS-5 personnel assistant level in the same personnel specialty as the position to be filled.

—OR—

2. A background which includes at least 1 year of progressively responsible experience at the GS-5 level which involved independently initiating, planning, and coordinating all or a segment of the clerical work in the same personnel specialty as the position to be filled. Such experience may have required the application of a knowledge of personnel operations and locally established program requirements, priorities, and practices to initiate, plan, and coordinate a series of interrelated clerical activities to meet the needs of varying circumstances.

BEST COPY AVAILABLE

—OR—

3. A background which includes a combination of personnel assistance and clerical experience as described in (1) and (2) above.

—AND—

4. Evidence of possession of any selective factors appropriate to the position being filled.

For the GS-7 Assistant Level—

1. A background which includes at least 1 year of progressively responsible personnel assistant experience at the GS-6 level applying a practical knowlege of specialized personnel methods, regulations, or principles in doing routine technical work of a noncontroversial nature in the same personnel specialty as the position to be filled. This usually includes experience in conducting interviews to develop facts such as job content or circumstances concerning an incident; analysis of readily understood technical subjects or kinds of work; composition of narrative reports, questionnaires, summaries, or letters explaining routine technical actions. Examples:

—Classification Assistant

- Applying routine job analysis techniques and classification principles in limited technical tasks involving noncontroversial situations and a few kinds of lower grade positions.

  This experience may be acquired through the performance of such work as interviewing supervisors to determine that the content of a job warrants use of an IA position number; reviewing a competitive level system for discrepancies and adequacy of justifications and rewriting justifications for review by classifiers; identifying classification criteria in standards and preparing questions to be asked during a desk audit to elicit appropriate data; conducting random sample audits to determine currency of PD's and organizational data; and writing amendments to update duties in PD's.

—Employee Development Assistant

- Applying knowledges related to employee development principles and potential subject-matter resources in limited technical support work.

  This experience may have been acquired through the performance of various kinds of work, such as selecting trainees on the basis of relatedness of subject matter to the mission or organization when courses are oversubscribed; reviewing catalogs and contacting libraries for suitable films to preview and show; demonstrating use of self-teaching equipment; ascertaining that employees have prerequisites for courses, e.g., grade level and previous courses completed; revising questionnaires to survey employee interest in specific training seminars; interviewing interns and employees in upward mobility programs at various stages of development to verify progress, ascertain continued interest, and determine if there are any problems; and substituting similar courses to resolve conflicts in study/work/leave schedules.

—Employee Relations Assistant

- Applying regulations concerning Federal employee benefits, fact-finding to investigate noncontroversial cases by obtaining relevant facts; evaluating the adequacy of these facts in light of established precedents; and explaining options available to the employee based upon circumstances of individual cases.

  This experience may be acquired through the performance of work involving investigating and developing facts concerning on-the-job injuries or illnesses; processing routine claims which require identifying and substantiating relevant information in narra-

BEST COPY AVAILABLE

tive reports; coordinating details of cases between employees, supervisors, medical officers, and the claims office; explaining options regarding leave for time off the job and potential compensation; and writing draft instructions concerning the Federal workers' compensation program.

- Applying knowledge of regulations and requirements pertaining to the incentive awards program to review the subject matter of suggestions for similarities to previous submissions and to select appropriate reviewing officials or to interview employees and supervisors to obtain additional information.

This experience may be acquired through the performance of a variety of work, such as obtaining documentation regarding the nature and extent of potential tangible and intangible benefits both installation and agency-wide; screening justification for performance awards for factual documentation; recommending dollar amount or award based on local precedent and regulations; preparing awards for publication; and composing letters outlining reasons why submissions could not be approved.

—Labor Relations Assistant

- Applying a practical knowledge of labor relations and the content of negotiated agreement(s) to perform limited technical work involving recurring types of questions, simple explanations of personnel policies, and development of facts of cases.

This experience may be acquired through the performance of work involving screening union questions or complaints; drawing out facts to determine the nature or scope of problems; informally resolving recurring questions that can be satisfied by the explanation of basic personnel policies such as approvals of sick leave or use of AWOL; interviewing operating supervisors to develop facts about reported rumors or to obtain background information regarding particular incidents or working conditions; and summarizing facts for use by the labor relations specialist.

—Staffing Assistant

- Applying a practical knowledge of evaluation techniques and staffing (examining, recruiting, or placement) principles to perform, for example, limited technical work involving recurring vacancies and readily understood kinds of work or lower grade positions; or to screen applicants for entry on an inventory of eligibles on the basis of minimum experience and educational requirements.

This experience may be acquired through the performance of work such as interviewing supervisors to determine the adequacy of a previous job vacancy announcement and the nature of changes to be made, or to discuss similar jobs in recurring vacancies for which the same recruitment source might be appropriate; screening applications (including substituting education for general or specialized experience) to determine that minimum requirements are met for initial entry on a deferred-rated competitor inventory or applicant supply file; evaluating the relative value of individual qualifications using specified factors to place applicants in rank order on an inventory or register used to fill a few kinds of related lower grade positions, e.g., promotion register for stenographers or clerks used to fill positions installation-wide.

—AND—

2. Evidence of possession of any selective factors appropriate to the position to be filled.

BEST COPY AVAILABLE

For the GS-8 Assistant Level—

1. A background which includes at least 1 year of progressively responsible experience at the GS-7 level applying knowledge of specialized personnel methods, regulations, principles or concepts in the same personnel specialty as the position to be filled. This knowledge is used to perform projects such as recommending changes to local personnel instructions; analyzing a variety of specific lower grade positions; and investigating employee complaints, problems, or infractions of rules. At this level, interviewing, analysis, and writing skills are used in connection with moderately complex personnel subjects and techniques, or a variety of specific clerical, technical, or entry-level professional and administrative jobs.

—AND—

2. Evidence of possession of any selective factors appropriate to the position to be filled.

C. *Quality Ranking Factors*

In addition to minimum qualifications, agencies may develop and apply quality ranking factors on the basis of local needs. Because quality ranking factors relate to work behaviors not specifically covered by the minimum requirements, they identify *better qualified* candidates from a group of persons who are basically qualified for the position. FPM chapter 332, subchapter 4 and appendix B, provide guidance on the use of quality ranking factors.

1. The following are examples of quality ranking factors which may be applied to the extent that they reflect work behaviors in *personnel clerical positions,* along with examples of how the skills or knowledges may be obtained.
   a. Knowledge of the specialized nature of personnel data needed and the responsibility of various individuals, officials, or organizational units in connection with the processing of forms and documents.
      —Processing personnel action requests requiring knowledge of the occupational coding structure, position numbering and control system, nature of action terms, regulatory authorities, paysetting procedures, requirements for eligibility for Federal employee benefits, etc. The requests are initiated in administrative offices and forwarded through various approving offices, e.g., the classification, staffing, and processing units.
      —Processing employment applications in examining offices or in agency personnel offices; e.g., determining the presence of supplemental questionnaires and documentation such as college transcripts and honorable discharges from military services; reviewing completed requests for certificates of eligibles for compliance with selection procedures; and applying basic evaluation techniques.
   b. Skill in entering data into an automated data system.
      —Using a variety of codes and specific coding instructions to enter data into automated records; e.g., master personnel records, training records, skills bank, master organizational records, through preparing code sheets or keying data using a remote control terminal.
   c. Skill in applying a knowledge of the format and procedures for preparing correspondence.
      —Typing various kinds of memorandums, forms, and letters with different formats, signature blocks, organizational codes, or other specific requirements, and assembling copies for file and different echelons.
   d. Skill in scheduling and arranging events.
      —Arranging or scheduling meeting places (for rating panels, hearings, training, testing, etc.); ordering equipment (microphones, easels, etc.); planning seating arrangements; notifying participants of time/place; assuring

BEST COPY AVAILABLE

adequate stock of handouts; making housing arrangements for out-of-town attendees; and/or making appointments for the supervisor and maintaining the supervisor's calendar.

e. Skill in maintaining office files.

—Maintaining a variety of records such as making computer entries to record information; maintaining office copies of regulations (agency publications, FPM and other OPM issuances); maintaining official subject-matter publications (classification or qualification standards, film library, training or coding manuals, etc.); and/or transferring, retiring, or disposing of records according to regulations.

f. Skill in applying knowledge of the organization served.

—Maintaining master records or directories of organizations served; contacting originators of forms (personnel action requests, time cards, etc.) in various organizations to resolve irregularities; and/or sorting mail by relating subject matter to organizational mission.

2. The following are examples of quality ranking factors which may be applied to the extent that they reflect work behavior in *personnel assistant positions,* along with examples of how the skills or knowledges may be obtained.

a. Skill in oral communications, in order to deal effectively and equitably with others.

—Conducting interviews, orientation, or training; explaining Federal employee benefits, personnel procedures, and/or employment opportunities; etc. Toastmaster/mistress activities and successful completion of undergraduate courses in speech or public speaking may also indicate skills in oral communication.

b. Skill in written communications, in order to use proper English grammar and correct spelling to impart factual information in an understandable manner.

—Writing letters, memorandums, reports, evaluation statements, position descriptions, or summaries of incentive awards or training courses; writing meeting minutes or narratives; editing newsletters; etc. Successful completion of undergraduate courses in English composition, technical report writing, or journalism may also indicate skills in written communications.

c. Ability to analyze, in order to identify and compare facts and draw conclusions or correct implications.

—Reading and applying Federal rules, guidelines, standards, policies, and directives relating to various functional areas of personnel; gathering relevant facts about a situation and using the appropriate references to make judgmental decisions or to suggest solutions; etc.

BEST COPY AVAILABLE

Respiratory Therapist[1]

GS-4 and above

DESCRIPTION OF WORK

Respiratory therapists administer respiratory therapy care and life support to patients with deficiences and abnormalities in respiratory function, under the direction of physicians. Using a variety of respiratory equipment, they perform therapeutic and diagnostic procedures in hospital nursing units, emergency rooms, and intensive care units. Therapeutic procedures typically include: administering oxygen, humidity and aerosol treatments; performing bronchial hygiene therapy such as clapping, vibrating, postural drainage, breathing exercises, and incentive spirometry; maintaining clearance of patients' natural and artificial airways involving the operation and monitoring of mechanical ventilators; and providing primary assistance in cardiopulmonary resuscitation. Diagnositc procedures include, for example: taking and analyzing blood gas samples to determine the level of oxygen, carbon dioxide, and acid-base balance of the blood; observing and examining patients for abnormalities in pulse, breath sounds, inspiratory and expiratory effort, and other signs which may indicate difficulty in breathing; and performing various tests and procedures such as spirometry, deadspace and tidal volume ratio, lung compliance, and maximal respiratory pressures to measure and calculate respiratory function. As a regular part of their work, respiratory therapists clean, sterilize, calibrate, and make minor repairs to the equipment. They are also responsible for recording treatment and medical information pertinent to patient care.

Respiratory therapists must have knowledge of respiratory equipment and procedures sufficient to deliver the prescribed treatment. In addition, they must have a practical knowledge of the basic medical sciences such as anatomy, physiology, chemistry, and physics as they pertain to the respiratory and circulatory systems of the human body.

For more information about the work of this occupation refer to the Position Classification Standard for the Respiratory Therapist Series, GS-651.

MINIMUM QUALIFYING EXPERIENCE REQUIREMENTS

For positions at GS-4, at least 6 months of experience at the grade GS-3 or equivalent level of work which demonstrated a knowledge of basic equipment used in respiratory therapy and included duties such as: transporting, setting up, testing the operation and changing simply oxygen administering devices (e.g., masks and nasal cannulas with cylinder or centralized medical gas systems); disassembling, cleaning, assembling, and sterilizing reusable respiratory equipment; monitoring and maintaining records of the operation of relatively simply pieces of respiratory equipment such as oxygen analyzers and regulators, including recognizing and reporting variations from expected results; and making regular rounds on hospital nursing units to insure that the respiratory equipment is operating properly and in compliance with physicians' orders.

Experience as a practical nurse, nursing assistant, medical machine aid, medical technican, or respiratory therapy aid may be qualifying providing the experience involved work which required knowledges and the performance of duties noted in the preceding paragraph.

For positions at GS-5, at least 6 months of experience at the grade GS-4 or equivalent level of work which included duties such as: administering oxygen therapy to patients using devices such as nasal cannulas, masks, catheters, and face tents; setting up and monitoring humidifiers and handheld nebulizers; performing incentive spirometry and instructing patients in deep breathing exercises; assisting physicians during bronchoscopies;

[1] This standard supersedes the qualification guidance for Inhalation Therapy Technican positions contained in the qualification standard for the Medical Machine Technician Series, GS-649, published in April 1973.

18 BEST COPY AVAILABLE

cleaning, checking the operation and changing basic respiratory equipment such as flowmeters, humidifiers, hand ventilators, oxygen tanks, and regulators; and charting and keeping records of patient treatment and progess. This experience must have demonstrated a knowledge of standard respiratory therapy equipment, procedures and techniques; working knowledge of human anatomy and physiology covering major organs and systems of the body; and a knowledge of basic chemistry, physics, and mathematics.

For positions at GS-6, at least 1 year of experience at the grade GS-5 or equivalent level of work which included duties such as: administering oxygen and aerosols containing prescribed medications to patients involving the use of a variety of standard respiratory equipment; drawing and analyzing blood samples from patients; collecting sputum specimens using aerosol administration and tracheal suctioning; performing chest physical therapy using techniques such as clapping; vibrating, and postural drainage to facilitate the removal of secretions; calibrating equipment such as oxygen regulators and blood gas analyzers; and setting up and monitoring the operation of compressors, nebulizers, non-rebreathing masks and co-oximeters. This experience must have demonstrated a knowledge of a wide variety of commonly used respiratory therapy equipment, procedures, and techniques, including an understanding of the basic operating characteristics and capabilities of volume ventilators; practical knowledge of the basic medical sciences such as anatomy, physiology, chemistry, and physics and how they relate to the respiratory and cardiovascular systems of the human body; knowledge of various respiratory diseases such as bronchitis, asthma, and emphysema, including the appropriate methods of treatment; and knowledge of commonly used respiratory drugs such as bronchodilators.

For positions at GS-7, at least 1 year of experience at the grade GS-6 or equivalent level of work which included duties such as: setting up and monitoring complex respiratory equipment such as volume and pressure ventilators; performing airway care and maintenance on intensive care patients; performing specific diagnostic studies to determine oxygen consumption/carbon dioxide production, measure respiratory compliance, tidal volume and inspiratory force; drawing and interpreting results of blood gas analyses; providing oxygen and life support to patients during emergency resuscitations; assisting physicians in placing artificial airways into patient's trachea; and calibrating complex respiratory equipment such as pressure and volume ventilators, oximeters, and mass spectrometers. This experience must have provided the applicant with knowledge of the full range of equipment, procedures, and techniques used in respiratory therapy including the operating characteristics, capabilities, and limitations of the complex equipment (e.g., volume ventilators) used in intensive respiratory care and emergency situations. The experience must have demonstrated a knowledge of anatomy and physiology of the respiratory system including an indepth understanding of how the structure and function of the lungs and bronchi relate to gas exchange and ventilation; and a knowledge of caring for a wide variety of acute and chronic respiratory disorders.

For positions at GS-8 and above, at least 1 year of respiratory therapy experience at or equivalent to the next lower grade in the normal line of promotion.

SUBSTITUTIONS OF EDUCATION AND TRAINING FOR EXPERIENCE

1. Successful completion of 2 academic years of post high school education with at least 12 semester hours in any combination of sciences such as anatomy, biology, chemistry, physics, medical technology, or physiology may be substituted for three months of the minimum experience requirements for GS-4.
2. Successful completion of a 1-year accredited program of study in respiratory therapy may be substituted for three months of the

BEST COPY AVAILABLE

minimum experience requirements at GS-4.

3. Successful completion of a 2-year accredited program of study leading to an associate's degree in respiratory therapy may be substituted for the total minimum experience requirements for GS-4.
4. Successful completion of a 4-year or more accredited program of study leading to a bachelor's or higher degree in respiratory therapy may be substituted for the total minimum experience requirements for GS-5.

SUPERVISORY POSITIONS

For supervisory positions, apply the qualification standard for "Supervisory Positions in General Schedule Occupations" in Part III of Handbook X-118, in conjunction with this standard.

BASIS FOR RATING AND RANKING CANDIDATES

No written test is required. Candidates will be rated on a scale of 70 to 100 based on an evaluation of the quality and extent of their experience, education, and training or other achievements pertinent to the duties of the position to be filled. Such ratings will be based upon information furnished by candidates in their applications and any additional information that may be secured by qualification inquiries made to supervisors, schools, and other references.

Some kinds of training and experience which enhance the candidates qualifications may be treated as factors to award extra credit for rating and ranking purposes. These include but are not limited to the following:

—Possession of "certification" or "registration" such as a "Certified Respiratory Therapist" or "Registered Respiratory Therapist";

—Evidence of efforts to keep current with new equipment and procedures in the field of respiratory therapy. Such evidence might consist of successful completion of work-related educational courses in excess of those used to meet minimum requirements, or active membership in the American Association for Respiratory Therapy;

—Recognition for exceptional work performance, e.g., performance awards and work-related commendations.

INSERVICE PLACEMENT

For inservice placement actions at any grade the basis of rating is established by the agency in accordance with FPM Supplement 335-1.

ACCREDITED SCHOOLS

A listing of accredited educational programs in respiratory therapy may be secured from the Department of Allied Health Education and Accreditation, American Medical Association, 535 Dearborn Street, Chicago, Illinois 60610.

PHYSICAL REQUIREMENTS

The following requirements apply to employees occupying positions covered by this standard as well as candidates for such positions.

Candidates and employees must have the capacity to perform the essential functions of the position without risk to themselves or others. In particular, because the position requires personal contact with patients, candidates, and employees must be free of disease which is likely to be transmitted to others. In most cases, a specific medical condition or impairment will not automatically disqualify a candidate or employee. A physical condition or impairment may be disqualifying only if the condition, for good medical reason, precludes assignment to or warrants restriction from the duties of the specific position. The loss or impairment of a specific function may be compensated for by the satisfactory use of a prosthesis or mechanical aid. Reasonable accommodation may also be considered in determining a candidate's ability to perform the duties of a position. Reasonable accommodation may include, but is not limited to: the use of assistive devices, job modification or

BEST COPY AVAILABLE

restructuring, provision of readers and interpreters, or adjusted work schedules.

In positions where there is exposure to environmental agents for which there are occupational/environmental standards which require protective measures or medical surveillance, candidates and employees shall undergo initial and periodic medical evaluation in accordance with the surveillance requirements.

Also, all positions involving Federal motor vehicle operation carry the additional medical requirements specified in Federal Personnel Manual Chapter 930, Appendix A, Physical Standards for Motor Vehicle Operators and Incidental Operators.

(TS-211)
November 1985

U.S. GOVERNMENT PRINTING OFFICE: 1986 O - 485-925

BEST COPY AVAILABLE